

**REKONSTRUKSI STRUKTUR KIMIA DAN EVOLUSI  
BINTANG BERMASA MENENGAH  $2.5M_{\odot}$**

**TUGAS AKHIR**

Diajukan Sebagai Salah Satu Syarat  
Untuk Memperoleh Gelar Sarjana Sains  
Program Studi Fisika



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*Assalamu'alaikum wr. wb.*

Setelah membaca, meneliti, memberikan petunjuk dan mengoreksi serta mengadakan perbaikan seperlunya, maka kami selaku pembimbing berpendapat bahwa skripsi Saudara:

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sudah dapat diajukan kembali kepada Program Studi Fisika Fakultas Sains dan Teknologi UIN Sunan Kalijaga Yogyakarta sebagai salah satu syarat untuk memperoleh gelar Sarjana Strata Satu dalam Fisika

Dengan ini kami berharap agar skripsi/tugas akhir Saudara tersebut di atas dapat segera dimunaqsyahkan. Atas perhatiannya kami ucapkan terima kasih.

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## PERNYATAAN BEBAS PLAGIARISME

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Dengan ini menyatakan bahwa Tugas Akhir yang saya susun sebagai syarat untuk memperoleh gelar sarjana merupakan hasil karya tulis pribadi. Adapun bagian-bagian tertentu dalam penulisan skripsi ini yang saya kutip dari hasil karya orang lain telah dituliskan sumbernya secara jelas sesuai dengan norma, kaidah dan etika penulisan ilmiah. Saya bersedia menerima sanksi pencabutan gelar akademik yang saya peroleh dan sanksi-sanksi lainnya yang sesuai dengan ketentuan yang berlaku, apabila dikemudian hari ditemukan adanya plagiat dalam skripsi ini.

Demikian surat ini saya buat dengan sebenar-benarnya.

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Yang menyatakan



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## *MOTTO*

**“Sesungguhnya Allah selalu ada bersama kita”**

**“Dibalik setiap peristiwa, akan ada HIKMAH yang siap dipetik”**

**“Allah selipkan kemudahan di tengah himpitan kesusahan”**

**“Mengejar ridho Allah, menenangkan dan menentramkan. Mengejar ridho manusia, menyesatkan dan menyakitkan. Semoga senantiasa menjadi hamba yang penuh syukur.**

**Amiiin”**



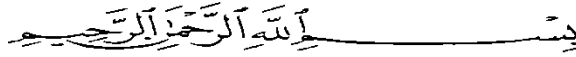
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Yogyakarta, 12 Juni 2015

***Penulis***



### DAFTAR KONSTANTA ASTROFISIKA

No	Lambang	Nama	Nilai & Satuan
1	$c$	Kecepatan Cahaya	$2.997925 \times 10^8 \text{ m/s}$
2	$G$	Konstanta Gravitasi	$6.6732 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$
3	$M_{\odot}$	Massa Matahari	$1.9891 \times 10^{30} \text{ kg}$
4	$R_{\odot}$	Jari-jari Matahari	$6.9598 \times 10^8 \text{ m}$
5	$L_{\odot}$	Luminositas Matahari	$3.83 \times 10^{33} \text{ erg/s}$
6	$E_{\odot}$	Fluks Energi Matahari	$1.9162 \times 10^{45} \text{ erg}$
7	$h$	Konstanta Planck	$6.6262 \times 10^{-27} \text{ erg s}$
8	$\sigma$	Konstanta Stefan-Boltzmann	$5.6696 \times 10^{-5} \text{ erg/cm}^2\text{K}^4\text{s}$
9	$k$	Konstanta Boltzmann	$1.3806 \times 10^{16} \text{ erg/K}$
10	$\rho_{\odot}$	Rapat Massa Matahari	$1.392 \text{ g/cm}^3$
11	$\kappa$	Koefisien Absorpsi	$\text{Partikel/cm}^2$
12	$p$	Tekanan	$\text{N/m}^2 \text{ (dyne/cm}^2\text{)}$
13	$\varepsilon$	laju pembangkitan energi	$\text{Erg/s}$
13	$\gamma$	Konstanta <i>Laplace</i>	$5/3$ untuk gas sempurna



# REKONSTRUKSI STRUKTUR KIMIA DAN EVOLUSI BINTANG BERMASA MENENGAH $2.5M_{\odot}$

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## INTISARI

Telah dilakukan penelitian untuk merekonstruksi struktur kimia dan evolusi bintang bermassa menengah  $2.5M_{\odot}$ . Penelitian ini bertujuan untuk mengetahui struktur dan jejak evolusi bintang dengan massa  $2.5M_{\odot}$ , mengetahui komposisi dan kelimpahan unsur-unsur dalam bintang bermassa  $2.5M_{\odot}$ , dan mengetahui perubahan kondisi fisis yang terjadi pada bintang bermassa  $2.5M_{\odot}$ .

Metode yang digunakan dalam penelitian ini adalah metode interpolasi spline menggunakan *software* khusus Astrofisika rancangan P. P. Eggleton tahun 1970. Dari hasil run program, didapatkan jejak evolusi bintang bermassa menengah  $2.5M_{\odot}$ , yaitu dari tahap ZAMS (*Zero Age Main Sequence*) sampai tahap PN (*Planetary Nebula*). Selain itu, didapatkan pula hasil perubahan struktur di dalam bintang serta perubahan komposisi kimia selama terjadinya proses evolusi. Hasil yang didapatkan berupa grafik.

Adapun hasil yang didapat adalah, pada tahap ZAMS bintang memulai reaksi nuklir dengan menggunakan daur karbon yang mana pada tahap ini komposisi bintang masih homogen, 75% hidrogen 23% helium dan sisanya adalah kelimpahan metal. Kemudian masuk pada tahap SGB (*Sub Giant Branch*). Bintang mulai mengalami perubahan komposisi kimia. Kelimpahan hidrogen sudah mulai berkurang sedangkan helium bertambah. Terjadi pula perubahan strukturnya, perubahan radius menjadi dua kalinya, suhu pusat menjadi  $3.10^7 K$ . Selanjutnya masuk ke fase RGB (*Red Giant Branch*) yang mana pada pusat bintang telah terbentuk inti helium. Pada tahap ini terjadi peningkatan radius dan menurunnya temperature efektif bintang. Kemudian memasuki tahap HB (*Horisontal Branch*) dan AGB (*Asymptotic Giant Branch*). Pada tahap AGB ini pusat bintang meningkat sampai  $10^8 K$  dan terjadi pelontaran massa sehingga massa dan radius bintang berkurang, yang dikenal dengan tahap PN. Pada tahap ini kelimpahan helium di inti semakin besar ditandai dengan semakin tebalnya radius inti helium sedangkan kelimpahan hidrogen ditemukan di kulit atau selubung.

**Kata Kunci :** *Struktur dan Evolusi, Perubahan Komposisi Kimia, Bintang Massa Menengah, Bintang Massa  $2.5M_{\odot}$*

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# BAB I

## PENDAHULUAN

### 1.1 Latar belakang

Pengetahuan pertama diperoleh dari para astronom bahwa menurut mereka ruang di antara bintang tidak kosong, tetapi terisi materi berupa gas dan debu yang disebut materi antarbintang. Kerapatan awan atau materi antarbintang sangat kecil, jauh lebih kecil dibandingkan dengan udara di sekitar kita. Meskipun jumlah atom di awan antarbintang tidak banyak, tapi karena volume antarbintang sangat besar, jumlah atom juga menjadi sangat besar dan memungkinkan terbentuknya bintang (Sutantyo, 1984).

Kenyataan ini sesuai dengan firman Allah dalam surat Fushshilat ayat 11.

ثُمَّ أَسْتَوَىٰ إِلَى السَّمَاءِ وَهِيَ دُخَانٌ فَقَالَ لَهَا وَلِلْأَرْضِ ائْتِيَا طَوْعًا أَوْ كَرْهًا

قَالَتَا أَتَيْنَا طَائِعِينَ ﴿١١﴾

*Kemudian dia menuju kepada penciptaan langit dan langit itu masih merupakan asap, lalu dia Berkata kepadanya dan kepada bumi: "Datanglah kamu keduanya menurut perintah-Ku dengan suka hati atau terpaksa". keduanya menjawab: "Kami datang dengan suka hati". (QS. Fushshilat 11)*

Prof. Rasjidi memaknai kata “*dukhan*” pada ayat di atas sebagai suatu kumpulan gas (*nebula*) dengan bagian-bagian kecil yang sangat halus. *Nebula* itu terdiri dari lapisan gas dan bagian-bagian kecil yang pada tekanan dan suhu

tertentu dapat berada pada fase padat atau cair (Bucaille, 2001). Salah satu benda langit yang terbentuk dari *nebula* adalah bintang (Kamal, 2014).

Bintang adalah benda langit yang mampu memancarkan cahaya sendiri. Kemampuan semacam inilah yang tak dimiliki oleh benda langit lainnya. Bahkan rembulan yang selalu tampak di malam hari, hanya bisa memantulkan cahaya dari bintang di sistem tata surya kita, matahari. Kisah hidup sebuah bintang dapat diibaratkan seperti makhluk hidup. Memiliki awal kelahiran, beraktivitas melangsungkan hidupnya, hingga bertemu dengan kematian. Hanya saja, umur bintang dapat diprediksi sesuai dengan massa atau struktur bintang tersebut. Hal ini biasa disebut dengan evolusi bintang.

Evolusi bintang ini merupakan akibat adanya perubahan struktur dalam bintang. Pada bintang tunggal evolusi bintang hanya dipengaruhi oleh massa dan komposisi kimianya. Bintang yang bermassa besar tahapan evolusinya lebih cepat dari pada bintang yang bermassa kecil. Begitu pula tahapan evolusi bintang yang lahir dari sisa-sisa ledakan bintang cenderung lebih cepat dari pada bintang yang lahir dari *nebula* karena unsur beratnya lebih besar (Kutner, 2003).

Materi yang dihasilkan dari proses kelahiran bintang terdiri dari 75 persen hidrogen (H) dan 25 persen helium (He). Semua unsur kimia lain dibentuk oleh berbagai reaksi inti pada bagian dalam. Hidrogen dan helium awal ini terpadatkan ke bagian dalam bintang di mana fusi inti mengubah sebagian besar hidrogen menjadi helium (Krane, 2008). Sehingga pada suatu masa tertentu, pusat bintang terisi oleh inti helium dan mulai berlangsunglah fusi



helium. Dari sinilah akan terbentuk unsur-unsur lain, yaitu karbon (C), Neon (Ne), oksigen (O), silikon (Si), dan terakhir besi (Fe).

Besi adalah unsur yang paling berat yang dapat diciptakan di pusat bintang melalui proses termonuklir yang melepaskan energi. Setelah besi terbentuk, reaksi yang melibatkan besi adalah penggabungan inti besi menjadi unsur-unsur lain yang lebih berat dan menyerap energi (Purwanto, 2012).

Peristiwa yang sangat penting dari evolusi bintang tunggal adalah meninjau darimana energi nuklir bintang diperoleh. Dari teori evolusi bintang diketahui bahwa evolusi lanjut suatu bintang sangat bergantung kepada massa awal bintang. Untuk bintang yang bermassa rendah,  $M_* < 2.3M_{\odot}$  (Schwarzschild, 1958), akan mengalami peristiwa *helium flash* karena reaksi pembakaran helium terjadi di pusat yang terdegenerasi sempurna. Sedangkan untuk bintang bermassa menengah,  $2.3M_{\odot} < M_* < 9M_{\odot}$  (Schwarzschild, 1958), dan bintang bermassa masif,  $M_* > 9M_{\odot}$  (Schwarzschild, 1958), pembakaran helium terjadi pusat yang tidak terdegenerasi sehingga pembakaran helium berlangsung dengan mantap. Oleh karena bintang bermassa  $2.5M_{\odot}$  tergolong dalam bintang massa menengah, maka pembakaran helium pun berlangsung mantap, tanpa terjadi *helium flash*.

Hal ini juga terjadi pada struktur kimia suatu bintang. Pada tahap awal pembentukannya, bintang masih memiliki komposisi yang homogen. Komposisi dan kelimpahannya berbeda berdasarkan pada massa awal bintang tersebut. Komposisi kimia untuk bintang tunggal bermassa menengah memiliki memiliki kelimpahan unsur hidrogen, helium, dan metal. Pada

mulanya, kelimpahan hidrogenlah yang dominan, sama seperti bintang lainnya. Akan tetapi karena proses evolusi, kelimpahan itu berubah.

Terjadinya peristiwa *helium flash* ataupun pengetahuan tentang perbandingan komposisi dan kelimpahan unsur-unsur dalam bintang saat evolusi tidak dapat diketahui hanya dengan melakukan pengamatan menggunakan teleskop. Sebab teleskop hanya dapat mencapai bagian luar bintang dan belum dapat menggambarkan kondisi yang terjadi di dalam bintang. Pengetahuan tentang bintang tidak akan lengkap tanpa mengetahui sifat fisis di dalam bintang. Oleh karena itu, astronom berusaha membuat teori model struktur bintang.

Massa awal suatu bintang sangat menentukan jalannya evolusi objek tersebut. Berbagai pemodelan dan observasi secara konsisten dilakukan untuk membangun keadaan fisis dengan baik. Sehingga penting melakukan rekonstruksi struktur kimia dan evolusi bintang tunggal bermassa menengah yang mana pembakaran helium di pusat berlangsung lebih mantap dibandingkan bintang bermassa rendah. Pemodelan dilakukan menggunakan *software* struktur dan evolusi bintang. Salah satu contoh *software* struktur dan evolusi bintang adalah STARS yang dirancang oleh P.P Eggleton pada tahun 1970.

## **1.2 Identifikasi Masalah**

Berdasarkan uraian latar belakang di atas, beberapa permasalahan yang muncul dalam pokok bahasan penelitian ini meliputi:

1. Pengamatan terhadap bintang hanya dapat mencapai bagian permukaan bintang saja sehingga fenomena fisis yang terjadi di bagian dalam bintang tidak diketahui.
2. Adanya perubahan komposisi kimia bintang tidak dapat diamati hanya dengan menggunakan teropong saja.

### 1.3 Batasan Masalah Penelitian

Objek dan kajian tentang bintang tunggal bermassa kecil, bermassa menengah, ataupun bermassa besar sangat luas, maka perlu adanya batasan-batasan dalam penelitian. Batasan pada penelitian ini adalah:

1. Skenario pemodelan bintang tunggal ini menggunakan *software* STARS dengan spesifikasi bintang massa menengah sebesar  $2.5M_{\odot}$ .
2. Hasil dan pembahasan yang menjadi acuan adalah mengenai perubahan struktur dan komposisi kimia pada bintang massa menengah  $2.5M_{\odot}$  dari tahap atau fase *Zero Age Main Sequence* sampai pada tahap *Planetary Nebula*.

### 1.4 Rumusan Masalah Penelitian

Rumusan masalah yang diambil dalam penelitian ini adalah sebagai berikut:

1. Bagaimana struktur dan jejak evolusi bintang dengan massa  $2.5M_{\odot}$ ?
2. Bagaimana komposisi dan kelimpahan unsur-unsur dalam bintang bermassa  $2.5M_{\odot}$ ?

3. Bagaimana kondisi fisis di dalam bintang yang terjadi pada bintang bermassa  $2.5M_{\odot}$ ?

### **1.5 Tujuan Penelitian**

Adapun tujuan dari penelitian ini, yaitu:

1. Mengetahui struktur dan jejak evolusi bintang dengan massa  $2.5M_{\odot}$ .
2. Mengetahui komposisi dan kelimpahan unsur-unsur dalam bintang bermassa  $2.5M_{\odot}$ .
3. Mengetahui perubahan kondisi fisis yang terjadi pada bintang bermassa  $2.5M_{\odot}$ .

### **1.6 Manfaat Penelitian**

Penelitian ini akan memberi manfaat dalam bentuk pemahaman terhadap beberapa hal, yaitu:

1. pemahaman mengenai struktur dan jejak evolusi bintang khususnya bintang tunggal yang memiliki massa menengah  $2.5M_{\odot}$ .
2. pemahaman mengenai perubahan komposisi kimia dan kelimpahan unsur-unsur dalam bintang bintang massa menengah.
3. pemahaman mengenai perubahan kondisi fisis yang terjadi selama proses evolusi.

Di samping itu, pemodelan ini juga bisa mengisi bagian-bagian dari evolusi bintang yang tidak sempat teramati melalui pengamatan teropong.

## 1.7 Sistematika Penulisan

Penulisan tugas akhir ini dibagi menjadi lima bagian utama yaitu; pendahuluan, landasan teori, metode penelitian, hasil dan analisis serta penutup. Berikut gambaran umum isi kelima bagian tersebut:

1. Bab I Pendahuluan terdiri dari latar belakang, identifikasi masalah, batasan masalah penelitian, rumusan masalah penelitian, tujuan, manfaat penelitian dan sistematika penulisan.
2. Bab II Landasan Teori terdiri dari tinjauan pustaka dan dasar teori. Bab II menjadi dasar untuk bab IV terkait struktur dan evolusi bintang.
3. Bab III Metode Penelitian berisi uraian prosedur kerja, input dan output *software* STARS serta plotting.
4. Bab IV Hasil dan Pembahasan berisi hasil rekonstruksi struktur kimia dan evolusi bintang tunggal bermassa menengah  $2.5M_{\odot}$ .
5. Bab V Penutup berisi kesimpulan dan saran penelitian lanjutan.

## BAB V

### PENUTUP

#### 5.1 Kesimpulan

1. Struktur dan evolusi bintang dengan massa  $2.5M_{\odot}$  yang tergolong kepada bintang massa menengah dalam tahap evolusinya adalah sebagai berikut, yaitu diawali dari tahap ZAMS (*zero age main sequence*), tahap SGB (*sub giant branch*), RGB (*red giant branch*), HB (*Horizontal Branch*), AGB (*Asymptotic Giant Branch*), dan PN (*Planetary Nebula*). Dari tahap-tahap atau jejak evolusi inilah dapat diamati perubahan komposisi kimia dan struktur dalam bintang. Karakteristik dari bintang massa menengah ini adalah untuk menuju tahap *Red Giant* tidak mengalami peristiwa *helium flash*.
2. Pada fase awal komposisi kimia bintang masih bersifat homogen, dan seiring berjalannya waktu serta adanya reaksi di dalam inti bintang dan selubung bintang, komposisi kimia dalam bintang tidak lagi homogen (sama) melainkan sudah heterogen. Ada beberapa unsur yang terbentuk dari reaksi-reaksi tersebut. Yang semula hanya terdapat 75% Hidrogen, 23% Helium, 2% Metal, karena adanya reaksi fusi, maka yang terjadi adalah produksi hidrogen semakin berkurang, helium semakin bertambah. Semakin lama pula, inti yang semula terisi oleh hidrogen akan tergantikan dengan inti helium yang lebih berat sehingga hidrogen melakukan reaksi di sekitar inti helium. Dari reaksi fusi helium di pusat bintang dan reaksi hidrogen di selubung inilah, akan lebih menghasilkan unsur-unsur lain, yaitu C, N, O.



3. Selain perubahan komposisi kimia, terjadi pula perubahan kondisi fisis pada bintang yang meliputi perubahan suhu, radius, dan luminositas. Terjadi penambahan nilai radius dan luminositas pada tiap tahap. Bahkan ketika memasuki tahap AGB, luminositas meningkat drastis. Temperatur di inti bintang pun mengalami kenaikan. Akan tetapi, pada tahap PN, massa dan radius bintang mengalami penurunan karena adanya pelontaran materi bintang.

## 5.2 Saran

Rekonstruksi struktur kimia dan evolusi sistem bintang tunggal bermassa menengah  $2.5 M_{\odot}$  menggunakan program STARS sebenarnya ide yang baik, hanya ada beberapa kelemahan dan kesulitan. Di antaranya adalah karena software ini lama tidak dikembangkan lagi, sulit untuk mendapatkan versi baru yang cocok dengan setting computer/laptop. Selain itu, panduan atau referensi mengenai program ini sangat minim. Sehingga untuk memahaminya sangat kesulitan.

Selain program STARS milik P.P. Eggleton, ada program baru yang sudah berkembang saat ini, yang lebih banyak dipakai, yaitu program MESA milik Bill Paxton. Program MESA ini lebih banyak referensi dan panduan manual video pengintalan sehingga lebih memudahkan pengguna/peneliti. Akan tetapi, computer/laptop yang digunakan harus sudah spesifikasi tinggi, supaya bisa berjalan lancar.

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## Lampiran I

### FILE INPUT STARS

#### File evol.dat

```
File Edit View Search Tools Documents Help
[Icons: Open, Save, Undo, etc.]
fort.20 x evol.dat x
INPUT: mod02p5.70 JOBID: 000086
IOSC: 0 IRL0: 1 IGR: 1 IMB: 1 IED: 1 IDS: 0
IVL1: 0 IVL2: 0 VL1: 1.4000 VL2: 0.0000 FRML: .000 FRAL: .000
NM0D: 1 FMT: 02.500000 FMT: 03.500000 ANGM: -.42000E+04
```

#### File fort.20

```
File Edit View Search Tools Documents Help
[Icons: Open, Save, Undo, etc.]
fort.20 x evol.dat x
199 40 40 11 11 2 1 1 1 0 1
50 1 1 1 2 50
1.0E+06 1.0E+02 1.0E+07 1.0E+00 1.00+00
5 5 0 3 1 30 0 0 0 99
1 2 4 5 3 9 10 11 8 7 6 0 0 0 0
6 7 8 9 10 4 2 1 3 5 0 0 0 0 0
4 5 6 7 8 2 3 1 2 3 1 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0
9 17 3 4 18 10 11 5 2 12 13 14 15 16 6
1 4 8 9 10 11 12 13 14 15 16 19 20 21 22
0 0 0 0 0 0 0 0 0 0 0 0 0 0
0.90 1.10 0.00 0.00 0.05 0.05 0.15 0.02 0.45 1.0E+04 1.0E+15 2.0E+04
2.00E-02 2.000 0.745 0.176 0.052 0.502 0.092 0.034 0.072 0.072
1.00E+06 1.00E-01 0.00E-00 0.00E-08 0.00E-00 0.10E-00 0.01E+00 mass const: cw: 3e van rechts
1.00E+03 0.00E-00 1.00E-00 0.00E+00 1.00E+00 0.00E-09 0.00E-00
Above is for ZAMS construction, with CN equilibrium (Z=.02, X=.70).
```

#### Penjelasan file fort.20

- 1 NH2 ITER1 ITER2 JIN JOUT NCH JP ITH IX IY IZ
- 2 NWRT1 NWRT2 NWRT3 NWRT4 NWRT5 NSAVE
- 3 EPS DEL DHO DT3 DDD
- 4 NE1 NE2 NE3 NB NEV NF J1 J2 IH JH
- 5 ID(30) – 3 baris
- 6 NE1 NE2 NE3 NB NEV NF J1 J2 IH JH
- 7 ID(90) – 3 baris
- 8 ISX(45) – 3 baris
- 9 DT1 DT2 CT(10)
- 10 ZS ALPHA CH CC CN CO CNE CMG CSI CFE
- 11 RCD OS RML RMG ECA XF DR
- 12 RMT RHL AC AK1 AK2 ECT TRB

### Formula fort.20 Normal Evolution

```

199 40 40 11 11 2 1 1 1 1 1
  1 2 1 1 0 0 0 0
100 1 1 1 2 50
1.0E-06 1.0E-02 1.0E-07 1.0E+00 5.0D-00
  5 5 0 3 1 30 0 0 0 99
  1 2 4 5 3 9 10 11 8 7 6 0 0 0 0
  6 7 8 9 10 4 2 1 3 5 0 0 0 0 0
  4 5 6 7 8 2 3 1 2 3 1 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  1 2 3 4 8 9 10 11 12 17 18 19 20 21 33
  3 17 9 24 30 25 26 27 28 2 4 0 0 0 0
  8 9 10 11 12 13 14 15 16 20 22 0 0 0 0
0.80 1.20 9.99 0.00 0.05 0.50 0.15 0.02 0.45 1.0E-04 1.0E+15 3.0E+19
2.00E-02 2.000 0.700 0.173 0.053 0.482 0.099 0.038 0.083 0.072
1.00E+06 0.00E-00 0.00E-00 0.00E-00 0.00E-00 0.00E-00 0.10E-00 0.01E+00
1.00E+03 0.00E-00 0.00E-00 0.00E+00 1.00E+00 0.00E-00 0.00E+00

```

### Formula fort.20 AGB Evolution

```

199 40 20 11 11 3 1 1 1 1 1
  1 2 1 1 0 0 0 0
100 1 1 1 2 100
1.0E-06 1.0E-02 1.0E-07 1.0E+00 5.0D-00
  5 5 0 3 1 30 0 0 0 99
  1 2 4 5 3 9 10 11 8 7 6 0 0 0 0
  6 7 8 9 10 4 2 1 3 5 0 0 0 0 0
  4 5 6 7 8 2 3 1 2 3 1 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  1 2 3 4 8 9 10 11 12 17 18 19 20 21 24
  3 17 9 24 30 25 26 27 28 2 4 0 0 0 0
  8 9 10 11 12 13 14 15 16 20 22 0 0 0 0
0.80 1.20 2.05 2.00 0.05 0.01 0.30 0.50 0.45 1.0E-04 1.0E+15 3.0E+19
2.00E-02 2.000 0.700 0.173 0.053 0.482 0.099 0.038 0.083 0.072
1.00E+06 0.00E-00 0.00E-13 1.00E-09 0.00E-00 0.10E-00 0.01E+00
5.00E+02 0.00E-00 0.00E-01 0.00E+00 1.00E+00 0.00E-11 0.00E+03

```

### Formula fort.20 WD Evolution

```

199 40 10 11 11 0 1 1 1 1 1
  1 2 1 1 0 0 0 0
100 1 1 1 2 100
1.0E-06 1.0E-02 1.0E-07 1.0E+00 1.0D+01
  5 5 0 3 1 30 0 0 0 99
  1 2 8 4 5 3 9 10 11 7 6 0 0 0 0
  6 7 8 9 10 4 2 1 3 5 0 0 0 0 0
  4 5 6 7 8 2 3 1 2 3 1 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0 0 0 0 0
  2 3 4 8 9 10 11 12 13 17 18 19 20 21 24
  3 17 9 24 30 25 26 27 28 2 4 0 0 0 0
  8 9 10 11 12 13 14 15 16 20 22 0 0 0 0
0.80 1.20 2.05 2.00 0.05 0.01 0.60 0.35 0.45 1.0E-04 1.0E+15 3.0E+19
2.00E-02 2.000 0.760 0.173 0.053 0.482 0.099 0.038 0.083 0.072
1.00E+06 0.00E-00 0.00E-09-1.00E-14 0.00E-00 0.10E-00 0.01E+00
5.00E+02 0.00E-00 0.00E-01 0.00E+00 1.00E+00 0.00E-03 1.00E+04

```

### Formula fort.20 Post He-Flash

```

199 40 40 11 11 2 1 1 1 0 1
  1 2 1 1 0 0 0
 50 1 1 1 2 10
1.0E-06 1.0E-02 1.0E-07 1.0E+00 1.0E+00
 5 5 0 3 1 30 0 0 0 99
 1 2 4 5 3 9 10 11 8 7 6 0 0 0 0
 6 7 8 9 10 4 2 1 3 5 0 0 0 0 0
 4 5 6 7 8 2 3 1 2 3 1 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 1 2 3 4 8 9 10 11 12 17 18 19 20 21 33
 3 17 9 24 30 25 26 27 28 2 4 0 0 0 0
 8 9 10 11 12 13 14 15 16 20 22 0 0 0 0
0.80 1.20 9.99 0.00 0.05 0.50 0.15 0.02 0.45 1.0E-04 1.0E+15 3.0E+19
2.00E-02 2.000 0.716 0.173 0.053 0.482 0.099 0.038 0.083 0.072
1.00E+06 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.00E-01 1.00E-02
1.00E+03 0.00E+00 0.00E+00 0.00E+00 1.00E+00 0.00E+00 0.00E+00

```

```

199 40 40 11 11 2 1 1 0 0 1
  1 2 1 1 0 0 0
 50 1 1 1 2 10
1.0E-06 1.0E-02 1.0E-07 1.0E+00 1.0E+00
 5 5 0 3 1 30 0 0 0 99
 1 2 4 5 3 9 10 11 8 7 6 0 0 0 0
 6 7 8 9 10 4 2 1 3 5 0 0 0 0 0
 4 5 6 7 8 2 3 1 2 3 1 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 1 2 3 4 8 9 10 11 12 17 18 19 20 21 33
 3 17 9 24 30 25 26 27 28 2 4 0 0 0 0
 8 9 10 11 12 13 14 15 16 20 22 0 0 0 0
1.00 1.00 9.99 0.00 0.05 0.50 0.15 0.02 0.45 1.0E-04 1.0E+15 3.0E+19
2.00E-02 2.000 0.716 0.173 0.053 0.482 0.099 0.038 0.083 0.072
1.00E+06 0.00E+00 0.00E+00 -1.00E-06 0.00E+00 1.00E-01 1.00E-02
1.00E+03 0.00E+00 0.00E+00 0.00E+00 1.00E+00 0.00E+00 0.00E+00

```

### Formula fort.20 PMS Evolution

```

199 40 10 10 10 2 1 0 0 0 0
  1 2 1 1 0 0 0 0
100 1 1 1 2 50
1.0E-06 1.0E-02 1.0E-07 1.0E+00 1.0E+00
 5 0 0 3 1 30 0 0 0 99
 1 2 4 8 7 6 0 0 0 0 0 0 0 0 0
 4 2 1 3 5 0 0 0 0 0 0 0 0 0 0
 2 3 1 2 3 1 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 2 3 4 7 8 9 10 11 18 17 27 23 24 25 26
 1 4 8 9 10 11 12 13 14 15 16 18 19 20 21
 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0.80 1.20 2.05 2.00 0.05 0.01 0.60 0.35 0.45 1.0E-04 1.0E+15 3.0E+19
2.00E-02 2.000 0.700 0.173 0.053 0.482 0.099 0.038 0.083 0.072
1.00E+06 0.00E-00 0.00E-00 0.00E-03 0.00E-00 0.10E-00 0.01E+00
1.00E+03 0.00E-00 0.00E-01 0.00E+00 1.00E+00 1.00E-06 0.00E+00

```

# Lampiran II

## FILE OUTPUT STARS

### File ev

```
File Edit View Search Tools Documents Help
ev000067 x evmassa25_2 x evmassa25_3 x dia000067 x evmassa25_1 x cobra x bev2massa25 x bev000067 x
K m r rho T L gr-ga H1 He4 C12 N14 O16 Ne20 Mg24 P kappa
199 6.776E-05 1.258E-02 4.775E+01 2.305E+07 5.344E-02 1.074E+00 5.389E-01 4.412E-01 6.956E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.307E+17 5.252E-01
197 2.237E-04 1.877E-02 4.768E+01 2.303E+07 1.751E-01 1.066E+00 5.389E-01 4.412E-01 6.954E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.304E+17 5.257E-01
195 4.655E-04 2.397E-02 4.760E+01 2.300E+07 3.606E-01 1.055E+00 5.389E-01 4.412E-01 6.952E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.301E+17 5.261E-01
193 7.965E-04 2.868E-02 4.752E+01 2.298E+07 6.098E-01 1.044E+00 5.389E-01 4.412E-01 6.950E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.297E+17 5.267E-01
191 1.222E-03 3.309E-02 4.743E+01 2.295E+07 9.236E-01 1.027E+00 5.389E-01 4.412E-01 6.946E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.293E+17 5.272E-01
189 1.750E-03 3.731E-02 4.733E+01 2.292E+07 1.304E+00 1.012E+00 5.389E-01 4.412E-01 6.943E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.288E+17 5.279E-01
187 2.387E-03 4.140E-02 4.722E+01 2.288E+07 1.751E+00 9.949E-01 5.389E-01 4.412E-01 6.939E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.283E+17 5.286E-01
185 3.145E-03 4.541E-02 4.710E+01 2.284E+07 2.270E+00 9.771E-01 5.389E-01 4.412E-01 6.934E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.278E+17 5.293E-01
183 4.036E-03 4.936E-02 4.698E+01 2.281E+07 2.861E+00 9.583E-01 5.389E-01 4.412E-01 6.929E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.272E+17 5.301E-01
181 5.072E-03 5.330E-02 4.684E+01 2.276E+07 3.527E+00 9.383E-01 5.389E-01 4.412E-01 6.923E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.266E+17 5.310E-01
179 6.269E-03 5.723E-02 4.670E+01 2.272E+07 4.270E+00 9.173E-01 5.389E-01 4.412E-01 6.917E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.260E+17 5.319E-01
177 7.642E-03 6.118E-02 4.654E+01 2.267E+07 5.092E+00 8.952E-01 5.389E-01 4.412E-01 6.910E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.253E+17 5.329E-01
175 9.212E-03 6.515E-02 4.637E+01 2.261E+07 5.995E+00 8.720E-01 5.389E-01 4.412E-01 6.903E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.246E+17 5.340E-01
173 1.100E-02 6.917E-02 4.620E+01 2.256E+07 6.980E+00 8.478E-01 5.389E-01 4.412E-01 6.896E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.238E+17 5.352E-01
171 1.302E-02 7.324E-02 4.601E+01 2.250E+07 8.047E+00 8.226E-01 5.389E-01 4.412E-01 6.888E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.229E+17 5.364E-01
169 1.531E-02 7.737E-02 4.580E+01 2.243E+07 9.195E+00 7.963E-01 5.389E-01 4.412E-01 6.880E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.220E+17 5.376E-01
167 1.790E-02 8.157E-02 4.558E+01 2.236E+07 1.042E+01 7.690E-01 5.389E-01 4.412E-01 6.871E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.211E+17 5.392E-01
165 2.080E-02 8.585E-02 4.535E+01 2.229E+07 1.173E+01 7.409E-01 5.389E-01 4.412E-01 6.862E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.200E+17 5.408E-01
163 2.406E-02 9.022E-02 4.510E+01 2.221E+07 1.311E+01 7.118E-01 5.389E-01 4.412E-01 6.852E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.189E+17 5.426E-01
161 2.772E-02 9.468E-02 4.484E+01 2.212E+07 1.456E+01 6.818E-01 5.389E-01 4.412E-01 6.842E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.178E+17 5.444E-01
159 3.181E-02 9.925E-02 4.455E+01 2.203E+07 1.608E+01 6.511E-01 5.389E-01 4.412E-01 6.832E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.166E+17 5.464E-01
157 3.638E-02 1.039E-01 4.425E+01 2.194E+07 1.765E+01 6.196E-01 5.389E-01 4.412E-01 6.822E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.153E+17 5.485E-01
155 4.147E-02 1.087E-01 4.393E+01 2.183E+07 1.927E+01 5.874E-01 5.389E-01 4.412E-01 6.810E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.139E+17 5.508E-01
153 4.715E-02 1.137E-01 4.358E+01 2.172E+07 2.093E+01 5.546E-01 5.389E-01 4.412E-01 6.799E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.124E+17 5.533E-01
151 5.346E-02 1.187E-01 4.322E+01 2.160E+07 2.260E+01 5.213E-01 5.389E-01 4.412E-01 6.787E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.108E+17 5.559E-01
149 6.047E-02 1.239E-01 4.283E+01 2.148E+07 2.429E+01 4.876E-01 5.389E-01 4.412E-01 6.775E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.092E+17 5.587E-01
147 6.825E-02 1.293E-01 4.241E+01 2.134E+07 2.598E+01 4.537E-01 5.389E-01 4.412E-01 6.762E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.074E+17 5.618E-01
145 7.687E-02 1.348E-01 4.197E+01 2.120E+07 2.766E+01 4.197E-01 5.389E-01 4.412E-01 6.749E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.056E+17 5.651E-01
143 8.641E-02 1.404E-01 4.151E+01 2.104E+07 2.930E+01 3.858E-01 5.389E-01 4.412E-01 6.736E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.037E+17 5.685E-01
141 9.695E-02 1.463E-01 4.101E+01 2.088E+07 3.089E+01 3.521E-01 5.389E-01 4.412E-01 6.722E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.016E+17 5.723E-01
139 1.086E-01 1.523E-01 4.048E+01 2.070E+07 3.243E+01 3.189E-01 5.389E-01 4.412E-01 6.707E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 9.946E+16 5.764E-01
137 1.214E-01 1.585E-01 3.992E+01 2.052E+07 3.389E+01 2.861E-01 5.389E-01 4.412E-01 6.692E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 9.719E+16 5.807E-01
135 1.356E-01 1.649E-01 3.933E+01 2.032E+07 3.526E+01 2.541E-01 5.389E-01 4.412E-01 6.677E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 9.482E+16 5.854E-01
133 1.511E-01 1.715E-01 3.870E+01 2.011E+07 3.654E+01 2.230E-01 5.389E-01 4.412E-01 6.661E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 9.231E+16 5.904E-01
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### File bev

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File Edit View Search Tools Documents Help
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INPUT: mod02p5_70 JOBID: 000067
TKOJ TN M_L TML TGR TMB dm_1/dt dm_t/dt ANGS
NM00 AGE M_L M_T RLF P_b SEP ANGT
1 .67809790E+06 .2500E+01 .3500E+01 -.5452E+01 .5135E+00 .2200E+04 .7519E+03 .265522E-01
.1328E+07 .8114E+09 .2255E+12 .1880E+21 .0000E+00 -.1109E-10 .0000E+00 .1697E-07
.0000E+00 .0000E+00 -.2761E-15 .2008E-37 .148266E+01 .1563E-02 1 8 111 7 11 21
.4599E+00 .0000E+00 .1549E+01 .3985E+01
2 .7625822E+06 .2500E+01 .3500E+01 -.5452E+01 .5060E+00 .2200E+04 .7519E+03 .265522E-01
.1255E+07 .7327E+09 .2039E+12 .1880E+21 .0000E+00 .1226E-20 .0000E+00 .1673E-07
.0000E+00 .0000E+00 -.1213E-15 .1135E-37 .147507E+01 .1337E-02 1 8 114 6 11 21
.4599E+00 .0000E+00 .1558E+01 .3988E+01
3 .82599271E+06 .2500E+01 .3500E+01 -.5462E+01 .4991E+00 .2200E+04 .7519E+03 .265522E-01
.1240E+07 .7184E+09 .1531E+12 .1880E+21 .0000E+00 .1633E-20 .0000E+00 .1650E-07
.0000E+00 .0000E+00 -.8608E-16 .9710E-38 .146853E+01 .1367E-02 1 8 115 6 11 20
.4599E+00 .0000E+00 .1566E+01 .3991E+01
4 .97619150E+06 .2500E+01 .3500E+01 -.5464E+01 .4928E+00 .2200E+04 .7519E+03 .265522E-01
.1226E+07 .7047E+09 .1226E+12 .1880E+21 .0000E+00 .2099E-20 .0000E+00 .1629E-07
.0000E+00 .0000E+00 -.6434E-16 .8357E-38 .146261E+01 .1395E-02 1 8 116 6 10 20
.4599E+00 .0000E+00 .1574E+01 .3994E+01
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.1211E+07 .6918E+09 .9593E+11 .1880E+21 .0000E+00 .2606E-20 .0000E+00 .1611E-07
.0000E+00 .0000E+00 -.4977E-16 .7203E-38 .145747E+01 .1421E-02 1 8 117 6 10 20
.4599E+00 .0000E+00 .1582E+01 .3997E+01
6 .94326990E+06 .2500E+01 .3500E+01 -.5472E+01 .4834E+00 .2200E+04 .7519E+03 .265522E-01
.1199E+07 .6803E+09 .6455E+11 .1880E+21 .0000E+00 .3873E-20 .0000E+00 .1598E-07
.0000E+00 .0000E+00 -.3636E-16 .5711E-38 .145377E+01 .1445E-02 1 8 119 6 10 20
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.1189E+07 .6720E+09 .8851E+10 .1880E+21 .0000E+00 .2825E-19 .0000E+00 .1596E-07
.0000E+00 .0000E+00 -.3192E-16 .4994E-38 .145326E+01 .1461E-02 1 8 120 6 10 20
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.1188E+07 .6708E+09 .9736E+10 .1880E+21 .0000E+00 .2568E-19 .0000E+00 .1594E-07
.0000E+00 .0000E+00 -.3136E-16 .4964E-38 .145269E+01 .1464E-02 1 8 120 6 10 20
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## File mod

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File Edit View Search Tools Documents Help
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-1.75288E-01 9.28530E+00 1.00400E-02 1.60397E+00 7.00000E-01 3.64315E-02 2.31180E-01 1.52678E+02 2.80000E-01 3.52000E-03 1.84000E-03
1.22412E-03 -4.85229E-04 3.09855E-56 2.53950E-320 -2.54306E-33 -2.84797E-07 -6.78848E-04 -5.04391E-01 -9.37845E-34 -3.74838E-49 0.00000E+00
-1.72457E+01 9.34473E+00 1.00400E-02 1.60397E+00 7.00000E-01 3.64315E-02 2.30587E-01 1.52678E+02 2.80000E-01 3.52000E-03 1.84000E-03
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-1.70410E+01 9.41278E+00 1.00400E-02 1.60397E+00 7.00000E-01 3.64315E-02 2.30798E-01 1.52678E+02 2.80000E-01 3.52000E-03 1.84000E-03
1.27500E-03 -4.41316E-04 2.89334E-56 4.88238E-15 -2.45244E-33 -2.84797E-07 -6.78064E-04 -5.04391E-01 -9.05742E-34 -3.61820E-49 0.00000E+00
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1.14434E-03 -4.21883E-04 2.82922E-56 9.09761E-15 -2.31195E-33 -2.84797E-07 -6.77694E-04 -5.04391E-01 -8.55258E-34 -3.41586E-49 0.00000E+00
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9.42950E-04 -4.03871E-04 2.45762E-56 1.63363E-14 -2.16872E-33 -2.84797E-07 -6.77320E-04 -5.04391E-01 -8.0802E-34 -3.20670E-49 0.00000E+00
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8.45489E-04 -3.98992E-04 2.47828E-56 2.42318E-14 -2.02116E-33 -2.84797E-07 -6.76966E-04 -5.04391E-01 -7.49481E-34 -2.98955E-49 0.00000E+00
-1.63446E+01 9.70418E+00 1.00400E-02 1.60397E+00 7.00000E-01 3.64315E-02 2.29861E-01 1.52678E+02 2.80000E-01 3.52000E-03 1.84000E-03
7.71030E-04 -4.02617E-04 2.27842E-56 3.65543E-14 -1.85746E-33 -2.84797E-07 -6.76670E-04 -5.04391E-01 -6.89050E-34 -2.74798E-49 0.00000E+00
-1.61627E+01 9.78034E+00 1.00400E-02 1.60397E+00 7.00000E-01 3.64315E-02 2.29564E-01 1.52678E+02 2.80000E-01 3.52000E-03 1.84000E-03
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8.68364E-04 -4.47861E-04 1.51908E-56 1.15847E-13 -1.23950E-33 -2.84797E-07 -6.75387E-04 -5.04391E-01 -4.59396E-34 -1.83292E-49 0.00000E+00
-1.56722E+01 1.00255E+01 1.00400E-02 1.60397E+00 7.00000E-01 3.64315E-02 2.28404E-01 1.52678E+02 2.80000E-01 3.52000E-03 1.84000E-03
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1.00031E-03 -4.85565E-04 8.45937E-57 1.41650E-13 6.89248E-34 -2.84797E-07 -6.74488E-04 -5.04391E-01 -2.59293E-34 -1.02311E-49 0.00000E+00
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1.03037E-03 -5.06089E-04 4.53686E-57 3.50956E-13 3.78161E-34 -2.84797E-07 -6.73806E-04 -5.04391E-01 -1.37372E-34 -5.51637E-50 0.00000E+00
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1.06856E-03 -5.30088E-04 2.34749E-58 5.10483E-13 2.83968E-35 -2.84797E-07 -6.73179E-04 -5.04391E-01 -7.98848E-36 -3.48262E-51 0.00000E+00
-1.51708E+01 1.04078E+01 1.00400E-02 1.60397E+00 7.00000E-01 3.64315E-02 2.26505E-01 1.52678E+02 2.80000E-01 3.52000E-03 1.84000E-03
1.14950E-03 -5.63821E-04 -1.11716E-56 7.38538E-13 8.92418E-34 -2.84797E-07 -6.72387E-04 -5.04391E-01 3.37288E-34 1.33455E-49 0.00000E+00
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1.26314E-03 -5.08457E-04 -4.19688E-55 1.06275E-12 3.46983E-32 -2.84797E-07 -6.71548E-04 -5.04391E-01 1.27423E-32 5.19464E-48 0.00000E+00
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1.27020E-03 -4.95207E-04 7.66998E-55 1.56241E-12 -6.60169E-32 -2.84797E-07 -6.70432E-04 -5.04391E-01 -2.32968E-32 -9.49537E-48 0.00000E+00
-1.48477E+01 1.07354E+01 1.00400E-02 1.60397E+00 7.00000E-01 3.64315E-02 2.24734E-01 1.52678E+02 2.80000E-01 3.52000E-03 1.84000E-03
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## File dia

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File Edit View Search Tools Documents Help
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MASS: 2.5000 kg Tef: 3.9664 kg L/Lt: 1.000000E+00 Mdot: .00E+00
VLI: .330E+02 VLT: .000E+00 VLE: .000E+00 DTIDE: .000E+00 DAQL: .000E+00
k m f rho T E7-ga HI Enuc Esh Estd L
199 .557E-04 1.38E-01 .295E-02 1.88E+08 1.01E-07 7.00E+00 1.10E+04 1.33E+00 .00E+00 .288E-01
197 .192E-03 2.09E-01 .295E-02 1.88E+08 1.32E-07 7.00E+00 1.05E+04 1.33E+00 .00E+00 .983E-01
195 .409E-03 2.70E-01 .294E-02 1.88E+08 1.55E-07 7.00E+00 1.03E+04 1.38E+00 .00E+00 .208E+00
193 .712E-03 3.24E-01 .294E-02 1.88E+08 1.74E-07 7.00E+00 1.01E+04 1.38E+00 .00E+00 .358E+00
191 .111E-02 3.76E-01 .293E-02 1.88E+08 1.90E-07 7.00E+00 9.92E+03 1.38E+00 .00E+00 .549E+00
189 .160E-02 4.25E-01 .293E-02 1.87E+08 2.05E-07 7.00E+00 9.71E+03 1.38E+00 .00E+00 .783E+00
187 .219E-02 4.72E-01 .292E-02 1.87E+08 2.17E-07 7.00E+00 9.48E+03 1.38E+00 .00E+00 1.06E+01
185 .290E-02 5.19E-01 .291E-02 1.87E+08 2.29E-07 7.00E+00 9.26E+03 1.38E+00 .00E+00 1.38E+01
183 .374E-02 5.65E-01 .291E-02 1.87E+08 2.39E-07 7.00E+00 8.99E+03 1.37E+00 .00E+00 1.75E+01
181 .471E-02 6.10E-01 .290E-02 1.86E+08 2.49E-07 7.00E+00 8.74E+03 1.37E+00 .00E+00 2.17E+01
179 .583E-02 6.56E-01 .289E-02 1.86E+08 2.58E-07 7.00E+00 8.46E+03 1.37E+00 .00E+00 2.64E+01
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175 .860E-02 7.47E-01 .288E-02 1.85E+08 2.73E-07 7.00E+00 7.88E+03 1.36E+00 .00E+00 3.74E+01
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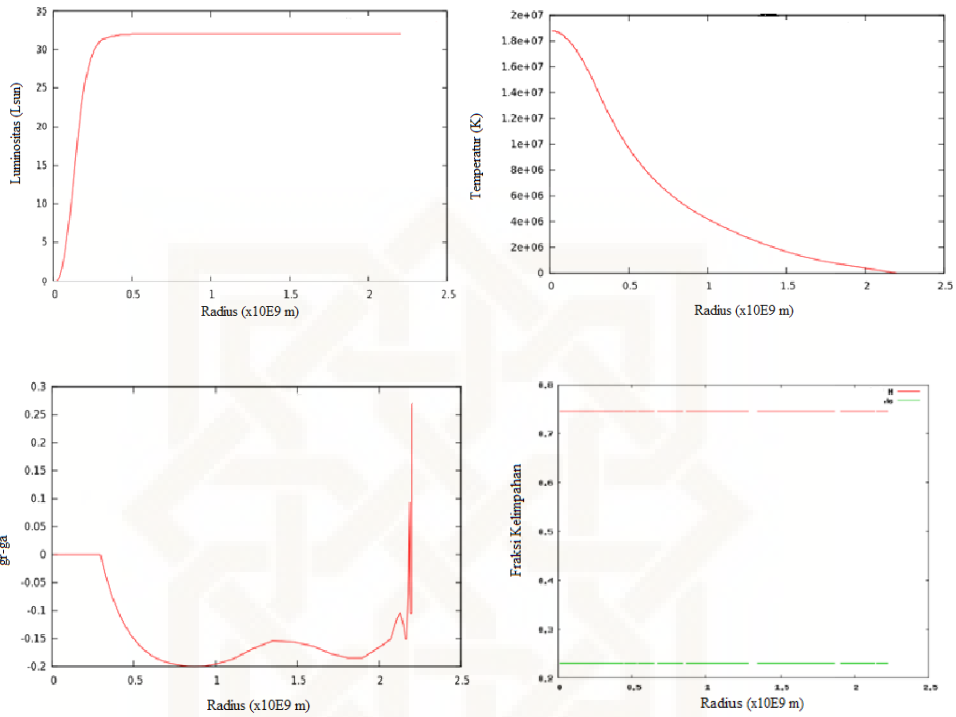
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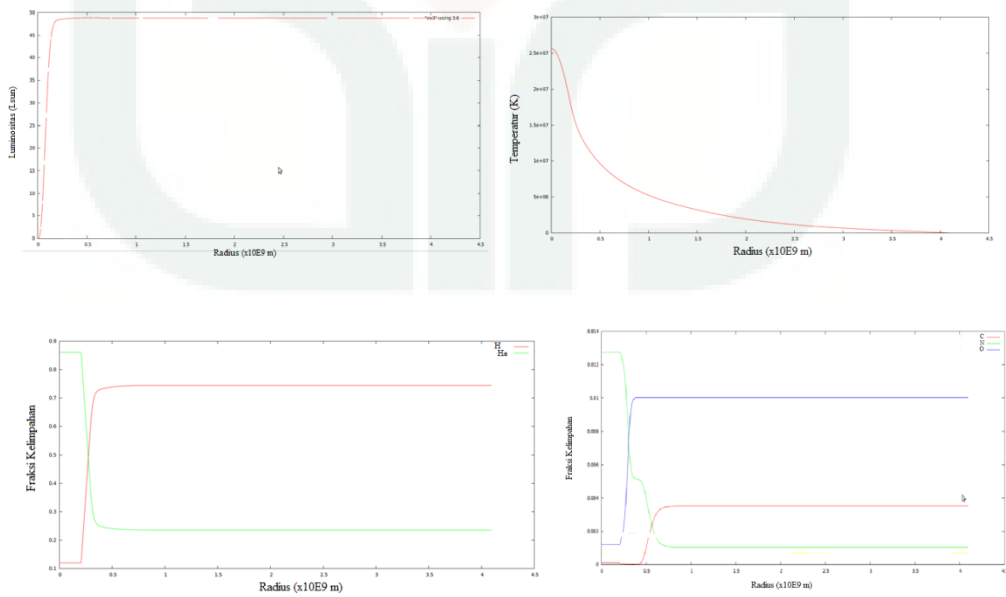
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**HASIL GRAFIK**

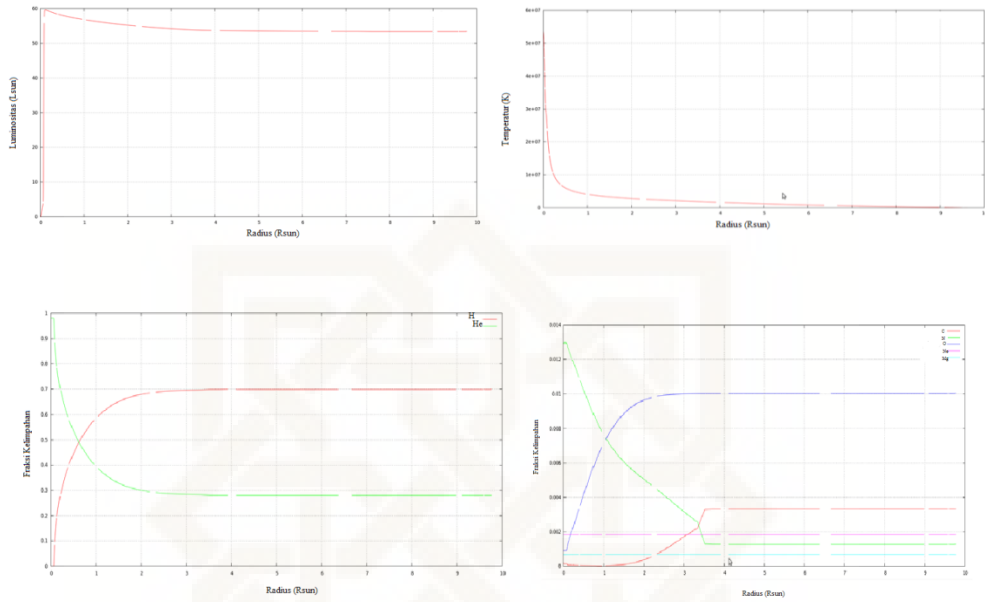
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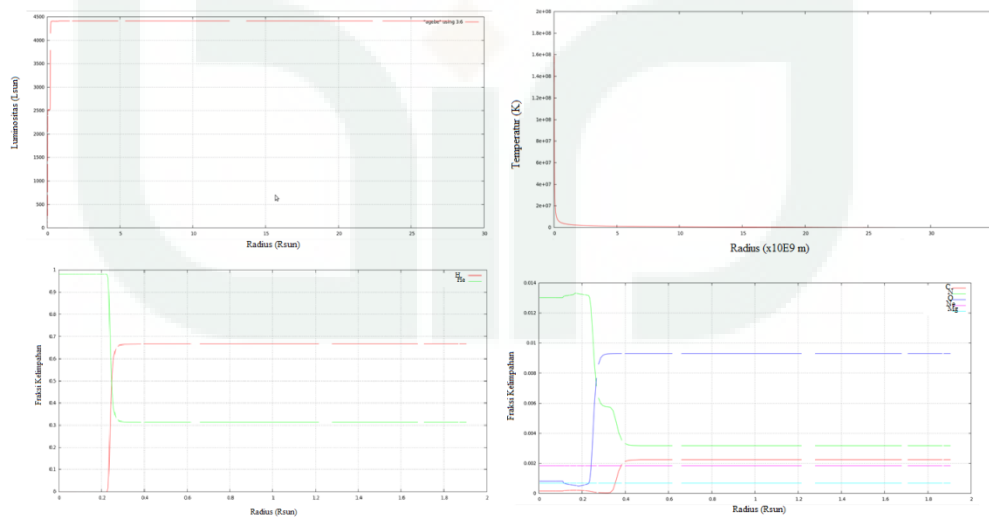
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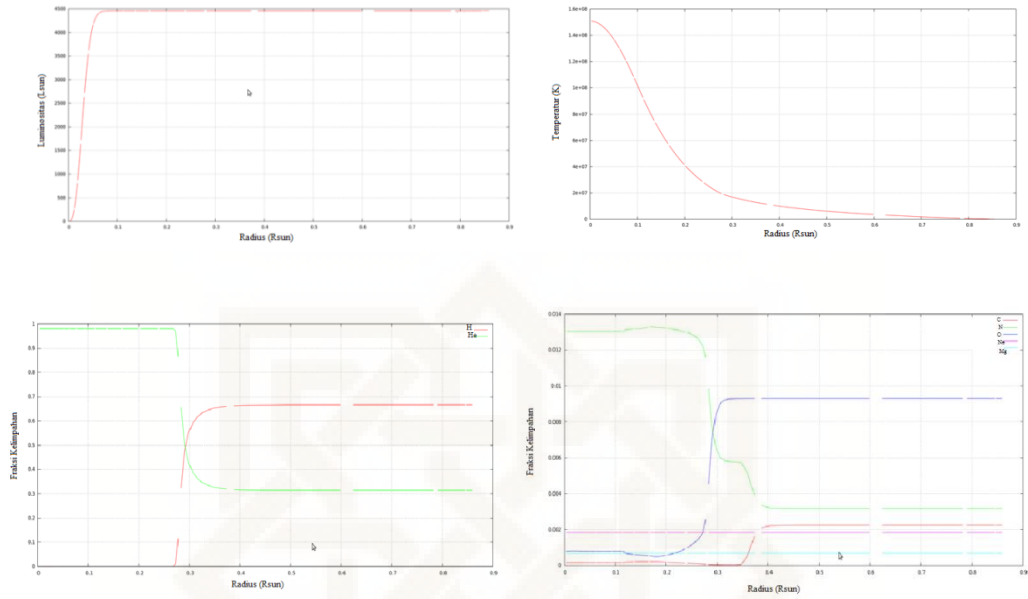
## Red Giant Branch (RGB)



## Asymptotic Giant Branch (AGB)



# Planetary Nebula (PN)



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198 1.653E-05 1.181E-02 6.527E+01 2.561E+07 1.349E-01 1.195E-01 8.610E-01 3.786E-01 1.255E+17 1.073E-04 1.274E-02 1.214E-03 1.840E-03 6.800E-04 3.878E-01  
197 1.508E-04 1.482E-02 6.520E+01 2.559E+07 2.641E-01 1.195E-01 8.610E-01 3.789E-01 1.253E+17 1.073E-04 1.274E-02 1.214E-03 1.840E-03 6.800E-04 3.879E-01  
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141 9.352E-02 1.326E-01 5.112E+01 2.189E+07 4.354E+01 1.195E-01 8.610E-01 4.432E-01 8.386E+16 1.022E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.898E-01  
140 9.888E-02 1.353E-01 5.059E+01 2.174E+07 4.408E+01 1.195E-01 8.610E-01 4.462E-01 8.243E+16 1.021E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.899E-01  
139 1.044E-01 1.381E-01 5.005E+01 2.159E+07 4.458E+01 1.195E-01 8.610E-01 4.494E-01 8.096E+16 1.019E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.900E-01  
138 1.105E-01 1.410E-01 4.949E+01 2.144E+07 4.504E+01 1.195E-01 8.610E-01 4.526E-01 7.947E+16 1.017E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.901E-01  
137 1.164E-01 1.439E-01 4.891E+01 2.128E+07 4.547E+01 1.195E-01 8.610E-01 4.560E-01 7.795E+16 1.015E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.902E-01  
136 1.230E-01 1.468E-01 4.832E+01 2.111E+07 4.585E+01 1.195E-01 8.610E-01 4.595E-01 7.640E+16 1.013E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.902E-01  
135 1.297E-01 1.498E-01 4.772E+01 2.094E+07 4.620E+01 1.195E-01 8.610E-01 4.631E-01 7.483E+16 1.012E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.903E-01  
134 1.367E-01 1.529E-01 4.710E+01 2.076E+07 4.651E+01 1.196E-01 8.610E-01 4.669E-01 7.323E+16 1.010E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.904E-01  
133 1.441E-01 1.559E-01 4.646E+01 2.058E+07 4.679E+01 1.196E-01 8.610E-01 4.709E-01 7.161E+16 1.007E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.905E-01  
132 1.518E-01 1.591E-01 4.581E+01 2.040E+07 4.704E+01 1.196E-01 8.610E-01 4.750E-01 6.996E+16 1.005E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.906E-01  
131 1.597E-01 1.623E-01 4.515E+01 2.020E+07 4.725E+01 1.196E-01 8.610E-01 4.793E-01 6.829E+16 1.003E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.907E-01  
130 1.681E-01 1.655E-01 4.447E+01 2.001E+07 4.745E+01 1.196E-01 8.610E-01 4.837E-01 6.659E+16 1.001E-04 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.908E-01  
129 1.767E-01 1.688E-01 4.377E+01 1.980E+07 4.761E+01 1.196E-01 8.610E-01 4.884E-01 6.488E+16 9.983E-05 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.909E-01  
128 1.858E-01 1.722E-01 4.306E+01 1.960E+07 4.776E+01 1.196E-01 8.610E-01 4.934E-01 6.315E+16 9.958E-05 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.910E-01  
127 1.952E-01 1.756E-01 4.234E+01 1.938E+07 4.788E+01 1.196E-01 8.610E-01 4.985E-01 6.139E+16 9.931E-05 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.911E-01  
126 2.049E-01 1.791E-01 4.159E+01 1.916E+07 4.798E+01 1.196E-01 8.610E-01 5.038E-01 5.963E+16 9.902E-05 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.912E-01  
125 2.151E-01 1.826E-01 4.084E+01 1.893E+07 4.807E+01 1.196E-01 8.610E-01 5.093E-01 5.784E+16 9.871E-05 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.914E-01  
124 2.256E-01 1.862E-01 4.006E+01 1.870E+07 4.815E+01 1.196E-01 8.610E-01 5.150E-01 5.605E+16 9.837E-05 1.275E-02 1.214E-03 1.840E-03 6.800E-04 3.915E-01  
123 2.365E-01 1.899E-01 3.926E+01 1.847E+07 4.821E+01 1.196E-01 8.610E-01 5.206E-01 5.424E+16 9.799E-05 1.276E-02 1.214E-03 1.840E-03 6.800E-04 3.916E-01  
122 2.479E-01 1.936E-01 3.844E+01 1.824E+07 4.826E+01 1.197E-01 8.610E-01 5.263E-01 5.242E+16 9.752E-05 1.276E-02 1.214E-03 1.840E-03 6.800E-04 3.917E-01  
121 2.596E-01 1.974E-01 3.759E+01 1.800E+07 4.830E+01 1.197E-01 8.610E-01 5.319E-01 5.060E+16 9.688E-05 1.276E-02 1.214E-03 1.840E-03 6.800E-04 3.918E-01  
120 2.717E-01 2.012E-01 3.672E+01 1.777E+07



91 8.331E-01 4.188E-01 6.814E+00 1.097E+07 4.881E+01 7.337E-01 2.458E-01 8.582E-01 1.035E+16 2.811E-05 5.118E-03 1.004E-02 1.840E-03 6.800E-04 3.946E-01  
90 8.620E-01 4.302E-01 6.484E+00 1.077E+07 4.881E+01 7.346E-01 2.448E-01 8.722E-01 9.678E+15 5.258E-05 5.088E-03 1.004E-02 1.840E-03 6.800E-04 3.946E-01  
89 8.917E-01 4.418E-01 6.162E+00 1.057E+07 4.882E+01 7.355E-01 2.439E-01 8.858E-01 9.034E+15 1.026E-04 5.029E-03 1.004E-02 1.840E-03 6.800E-04 3.946E-01  
88 9.220E-01 4.536E-01 5.849E+00 1.037E+07 4.882E+01 7.363E-01 2.431E-01 8.989E-01 8.420E+15 1.910E-04 4.925E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
87 9.531E-01 4.657E-01 5.544E+00 1.018E+07 4.883E+01 7.371E-01 2.424E-01 9.117E-01 7.836E+15 3.286E-04 4.764E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
86 9.848E-01 4.781E-01 5.247E+00 9.986E+06 4.883E+01 7.378E-01 2.417E-01 9.254E-01 7.281E+15 5.211E-04 4.539E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
85 1.017E+00 4.909E-01 4.959E+00 9.796E+06 4.883E+01 7.385E-01 2.410E-01 9.452E-01 6.753E+15 7.668E-04 4.253E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
84 1.050E+00 5.039E-01 4.680E+00 9.607E+06 4.883E+01 7.392E-01 2.404E-01 9.648E-01 6.252E+15 1.056E-03 3.915E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
83 1.084E+00 5.173E-01 4.409E+00 9.419E+06 4.883E+01 7.398E-01 2.398E-01 9.841E-01 5.777E+15 1.372E-03 3.546E-03 1.004E-02 1.840E-03 6.800E-04 3.948E-01  
82 1.119E+00 5.310E-01 4.146E+00 9.232E+06 4.883E+01 7.404E-01 2.393E-01 1.003E+00 5.328E+15 1.698E-03 3.166E-03 1.004E-02 1.840E-03 6.800E-04 3.948E-01  
81 1.154E+00 5.452E-01 3.892E+00 9.047E+06 4.883E+01 7.409E-01 2.389E-01 1.021E+00 4.903E+15 2.015E-03 2.796E-03 1.004E-02 1.840E-03 6.800E-04 3.948E-01  
80 1.189E+00 5.597E-01 3.646E+00 8.864E+06 4.883E+01 7.414E-01 2.384E-01 1.041E+00 4.502E+15 2.309E-03 2.453E-03 1.004E-02 1.840E-03 6.800E-04 3.948E-01  
79 1.225E+00 5.747E-01 3.409E+00 8.681E+06 4.883E+01 7.418E-01 2.380E-01 1.068E+00 4.123E+15 2.570E-03 2.149E-03 1.004E-02 1.840E-03 6.800E-04 3.948E-01  
78 1.262E+00 5.902E-01 3.180E+00 8.499E+06 4.883E+01 7.422E-01 2.377E-01 1.095E+00 3.767E+15 2.792E-03 1.890E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
77 1.299E+00 6.061E-01 2.960E+00 8.317E+06 4.883E+01 7.426E-01 2.373E-01 1.123E+00 3.433E+15 2.975E-03 1.676E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
76 1.337E+00 6.227E-01 2.749E+00 8.136E+06 4.883E+01 7.429E-01 2.371E-01 1.151E+00 3.119E+15 3.120E-03 1.506E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
75 1.376E+00 6.398E-01 2.546E+00 7.955E+06 4.882E+01 7.432E-01 2.368E-01 1.178E+00 2.825E+15 3.233E-03 1.375E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
74 1.415E+00 6.575E-01 2.351E+00 7.774E+06 4.882E+01 7.434E-01 2.365E-01 1.214E+00 2.550E+15 3.318E-03 1.276E-03 1.004E-02 1.840E-03 6.800E-04 3.947E-01  
73 1.454E+00 6.760E-01 2.165E+00 7.593E+06 4.882E+01 7.436E-01 2.363E-01 1.253E+00 2.294E+15 3.380E-03 1.203E-03 1.004E-02 1.840E-03 6.800E-04 3.946E-01  
72 1.494E+00 6.952E-01 1.987E+00 7.412E+06 4.882E+01 7.438E-01 2.361E-01 1.292E+00 2.056E+15 3.425E-03 1.150E-03 1.004E-02 1.840E-03 6.800E-04 3.946E-01  
71 1.534E+00 7.152E-01 1.818E+00 7.229E+06 4.881E+01 7.440E-01 2.360E-01 1.333E+00 1.834E+15 3.457E-03 1.113E-03 1.004E-02 1.840E-03 6.800E-04 3.945E-01  
70 1.575E+00 7.362E-01 1.657E+00 7.047E+06 4.881E+01 7.442E-01 2.358E-01 1.375E+00 1.630E+15 3.479E-03 1.088E-03 1.004E-02 1.840E-03 6.800E-04 3.945E-01  
69 1.616E+00 7.581E-01 1.503E+00 6.863E+06 4.881E+01 7.443E-01 2.357E-01 1.427E+00 1.440E+15 3.494E-03 1.071E-03 1.004E-02 1.840E-03 6.800E-04 3.944E-01  
68 1.658E+00 7.812E-01 1.358E+00 6.677E+06 4.881E+01 7.444E-01 2.356E-01 1.481E+00 1.266E+15 3.504E-03 1.059E-03 1.004E-02 1.840E-03 6.800E-04 3.943E-01  
67 1.700E+00 8.056E-01 1.221E+00 6.489E+06 4.880E+01 7.445E-01 2.355E-01 1.538E+00 1.107E+15 3.510E-03 1.052E-03 1.004E-02 1.840E-03 6.800E-04 3.942E-01  
66 1.743E+00 8.314E-01 1.092E+00 6.299E+06 4.880E+01 7.446E-01 2.354E-01 1.598E+00 9.604E+14 3.514E-03 1.047E-03 1.004E-02 1.840E-03 6.800E-04 3.942E-01  
65 1.785E+00 8.589E-01 9.698E-01 6.107E+06 4.880E+01 7.447E-01 2.353E-01 1.673E+00 8.274E+14 3.516E-03 1.044E-03 1.004E-02 1.840E-03 6.800E-04 3.940E-01  
64 1.829E+00 8.882E-01 8.559E-01 5.911E+06 4.880E+01 7.448E-01 2.352E-01 1.749E+00 7.069E+14 3.518E-03 1.042E-03 1.004E-02 1.840E-03 6.800E-04 3.939E-01  
63 1.872E+00 9.195E-01 7.495E-01 5.711E+06 4.879E+01 7.448E-01 2.352E-01 1.830E+00 5.982E+14 3.519E-03 1.041E-03 1.004E-02 1.840E-03 6.800E-04 3.938E-01  
62 1.917E+00 9.533E-01 6.507E-01 5.507E+06 4.879E+01 7.448E-01 2.352E-01 1.926E+00 5.008E+14 3.519E-03 1.041E-03 1.004E-02 1.840E-03 6.800E-04 3.936E-01  
61 1.961E+00 9.899E-01 5.594E-01 5.298E+06 4.879E+01 7.449E-01 2.351E-01 2.040E+00 4.143E+14 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.934E-01  
60 2.005E+00 1.030E+00 4.757E-01 5.083E+06 4.879E+01 7.449E-01 2.351E-01 2.153E+00 3.381E+14 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.932E-01  
59 2.050E+00 1.073E+00 3.995E-01 4.863E+06 4.878E+01 7.449E-01 2.351E-01 2.288E+00 2.717E+14 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.930E-01  
58 2.094E+00 1.121E+00 3.309E-01 4.636E+06 4.878E+01 7.450E-01 2.350E-01 2.452E+00 2.146E+14 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.927E-01  
57 2.138E+00 1.173E+00 2.699E-01 4.401E+06 4.878E+01 7.450E-01 2.350E-01 2.628E+00 1.662E+14 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.924E-01  
56 2.182E+00 1.232E+00 2.165E-01 4.160E+06 4.878E+01 7.450E-01 2.350E-01 2.842E+00 1.260E+14 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.921E-01  
55 2.224E+00 1.296E+00 1.706E-01 3.910E+06 4.877E+01 7.450E-01 2.350E-01 3.099E+00 9.336E+13 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.918E-01  
54 2.264E+00 1.367E+00 1.318E-01 3.653E+06 4.877E+01 7.450E-01 2.350E-01 3.376E+00 6.743E+13 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.914E-01  
53 2.302E+00 1.446E+00 9.994E-02 3.388E+06 4.877E+01 7.450E-01 2.350E-01 3.716E+00 4.742E+13 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.911E-01  
52 2.337E+00 1.532E+00 7.430E-02 3.116E+06 4.877E+01 7.450E-01 2.350E-01 4.063E+00 3.243E+13 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.908E-01  
51 2.369E+00 1.627E+00 5.421E-02 2.839E+06 4.877E+01 7.450E-01 2.350E-01 4.443E+00 2.156E+13 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.905E-01  
50 2.397E+00 1.729E+00 3.882E-02 2.560E+06 4.877E+01 7.450E-01 2.350E-01 4.737E+00 1.393E+13 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.904E-01  
49 2.421E+00 1.838E+00 2.726E-02 2.289E+06 4.877E+01 7.450E-01 2.350E-01 4.940E+00 8.746E+12 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.903E-01  
48 2.442E+00 1.953E+00 1.877E-02 2.031E+06 4.877E+01 7.450E-01 2.350E-01 5.037E+00 5.343E+12 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.902E-01  
47 2.458E+00 2.074E+00 1.265E-02 1.793E+06 4.877E+01 7.450E-01 2.350E-01 5.113E+00 3.181E+12 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.901E-01  
46 2.470E+00 2.198E+00 8.362E-03 1.577E+06 4.877E+01 7.450E-01 2.350E-01 5.190E+00 1.850E+12 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.898E-01  
45 2.479E+00 2.324E+00 5.425E-03 1.384E+06 4.877E+01 7.450E-01 2.350E-01 5.312E+00 1.053E+12 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.895E-01  
44 2.486E+00 2.451E+00 3.460E-03 1.213E+06 4.877E+01 7.450E-01 2.350E-01 5.481E+00 5.894E+11 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.890E-01  
43 2.491E+00 2.578E+00 2.174E-03 1.064E+06 4.877E+01 7.450E-01 2.350E-01 5.724E+00 3.250E+11 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.883E-01  
42 2.494E+00 2.702E+00 1.347E-03 9.342E+05 4.877E+01 7.450E-01 2.350E-01 6.072E+00 1.771E+11 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.874E-01  
41 2.496E+00 2.824E+00 8.259E-04 8.166E+05 4.877E+01 7.450E-01 2.350E-01 6.571E+00 9.559E+10 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.862E-01  
40 2.498E+00 2.943E+00 5.019E-04 7.234E+05 4.877E+01 7.450E-01 2.350E-01 7.239E+00 5.123E+10 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.847E-01  
39 2.499E+00 3.057E+00 3.031E-04 6.374E+05 4.877E+01 7.450E-01 2.350E-01 8.105E+00 2.731E+10 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.829E-01  
38 2.499E+00 3.166E+00 1.826E-04 5.611E+05 4.877E+01 7.450E-01 2.350E-01 9.292E+00 1.451E+10 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.810E-01  
37 2.500E+00 3.268E+00 1.101E-04 4.926E+05 4.877E+01 7.450E-01 2.350E-01 1.066E+01 7.703E+09 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.791E-01  
36 2.500E+00 3.364E+00 6.665E-05 4.311E+05 4.877E+01 7.450E-01 2.350E-01 1.203E+01 4.088E+09 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.772E-01  
35 2.500E+00 3.453E+00 4.047E-05 3.766E+05 4.877E+01 7.450E-01 2.350E-01 1.333E+01 2.173E+09 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.753E-01  
34 2.500E+00 3.534E+00 2.465E-05 3.287E+05 4.877E+01 7.450E-01 2.350E-01 1.465E+01 1.158E+09 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.734E-01  
33 2.500E+00 3.608E+00 1.508E-05 2.868E+05 4.877E+01 7.450E-01 2.350E-01 1.607E+01 6.193E+08 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.716E-01  
32 2.500E+00 3.674E+00 9.316E-06 2.495E+05 4.877E+01 7.450E-01 2.350E-01 1.788E+01 3.336E+08 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.701E-01  
31 2.500E+00 3.732E+00 5.870E-06 2.157E+05 4.877E+01 7.450E-01 2.350E-01 1.993E+01 1.819E+08 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.694E-01  
30 2.500E+00 3.782E+00 3.797E-06 1.851E+05 4.877E+01 7.450E-01 2.350E-01 2.104E+01 1.008E+08 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.700E-01  
29 2.500E+00 3.825E+00 2.504E-06 1.584E+05 4.877E+01 7.450E-01 2.350E-01 2.029E+01 5.685E+07 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.712E-01  
28 2.500E+00 3.862E+00 1.667E-06 1.362E+05 4.877E+01 7.450E-01 2.350E-01 1.907E+01 3.248E+07 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.722E-01  
27 2.500E+00 3.893E+00 1.114E-06 1.178E+05 4.877E+01 7.450E-01 2.350E-01 1.782E+01 1.877E+07 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.728E-01  
26 2.500E+00 3.920E+00 7.429E-07 1.029E+05 4.877E+01 7.450E-01 2.350E-01 1.674E+01 1.093E+07 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.725E-01  
25 2.500E+00 3.944E+00 4.929E-07 9.072E+04 4.877E+01 7.450E-01 2.350E-01 1.622E+01 6.399E+06 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.712E-01  
24 2.500E+00 3.966E+00 3.259E-07 8.063E+04 4.877E+01 7.450E-01 2.350E-01 1.635E+01 3.766E+06 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.684E-01  
23 2.500E+00 3.985E+00 2.156E-07 7.208E+04 4.877E+01 7.450E-01 2.350E-01 1.718E+01 2.232E+06 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.632E-01  
22 2.500E+00 4.002E+00 1.437E-07 6.466E+04 4.877E+01 7.450E-01 2.350E-01 1.865E+01 1.337E+06 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.531E-01  
21 2.500E+00 4.016E+00 9.767E-08 5.801E+04 4.877E+01 7.450E-01 2.350E-01 2.115E+01 8.158E+05 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.309E-01  
20 2.500E+00 4.029E+00 6.916E-08 5.178E+04 4.877E+01 7.450E-01 2.350E-01 2.486E+01 5.136E+05 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 2.844E-01  
19 2.500E+00 4.039E+00 5.160E-08 4.596E+04 4.877E+01 7.450E-01 2.350E-01 2.754E+01 3.358E+05 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 2.379E-01  
18 2.500E+00 4.047E+00 3.995E-08 4.070E+04 4.877E+01 7.450E-01 2.350E-01 2.618E+01 2.268E+05 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 2.657E-01  
17 2.500E+00 4.054E+00 3.107E-08 3.619E+04 4.877E+01 7.450E-01 2.350E-01 2.249E+01 1.556E+05 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.344E-01  
16 2.500E+00 4.060E+00 2.391E-08 3.242E+04 4.877E+01 7.450E-01 2.350E-01 1.967E+01 1.070E+05 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.644E-01  
15 2.500E+00 4.066E+00 1.828E-08 2.924E+04 4.877E+01 7.450E-01 2.350E-01 1.798E+01 7.367E+04 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.705E-01  
14 2.500E+00 4.071E+00 1.394E-08 2.650E+04 4.877E+01 7.450E-01 2.350E-01 1.702E+01 5.088E+04 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.687E-01  
13 2.500E+00 4.075E+00 1.063E-08 2.412E+04 4.877E+01 7.450E-01 2.350E-01 1.630E+01 3.529E+04 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.597E-01  
12 2.500E+00 4.079E+00 8.110E-09 2.204E+04 4.877E+01 7.450E-01 2.350E-01 1.589E+01 2.457E+04 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.356E-01  
11 2.500E+00 4.083E+00 6.217E-09

Output SGB : K m r rho T L gr-ga H1 He4 C12 N14 O16 Ne20 Mg24 P kappa

199 6.776E-05 1.258E-02 4.775E+01 2.305E+07 5.344E-02 1.074E+00 5.389E-01 4.412E-01 6.956E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.307E+17 5.252E-01  
197 2.237E-04 1.877E-02 4.768E+01 2.303E+07 1.751E-01 1.066E+00 5.389E-01 4.412E-01 6.954E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.304E+17 5.257E-01  
195 4.655E-04 2.397E-02 4.760E+01 2.300E+07 3.606E-01 1.055E+00 5.389E-01 4.412E-01 6.952E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.301E+17 5.261E-01  
193 9.655E-04 2.868E-02 4.752E+01 2.298E+07 6.098E-01 1.041E+00 5.389E-01 4.412E-01 6.950E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.297E+17 5.267E-01  
191 1.222E-03 3.309E-02 4.743E+01 2.295E+07 9.236E-01 1.027E+00 5.389E-01 4.412E-01 6.946E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.293E+17 5.272E-01  
189 1.750E-03 3.731E-02 4.733E+01 2.292E+07 1.304E+00 1.012E+00 5.389E-01 4.412E-01 6.943E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.288E+17 5.279E-01  
187 2.387E-03 4.140E-02 4.722E+01 2.288E+07 1.751E+00 9.949E-01 5.389E-01 4.412E-01 6.939E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.283E+17 5.286E-01  
185 3.145E-03 4.541E-02 4.710E+01 2.284E+07 2.270E+00 9.771E-01 5.389E-01 4.412E-01 6.934E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.278E+17 5.293E-01  
183 4.036E-03 4.936E-02 4.698E+01 2.281E+07 2.861E+00 9.583E-01 5.389E-01 4.412E-01 6.929E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.272E+17 5.301E-01  
181 5.072E-03 5.330E-02 4.684E+01 2.276E+07 3.527E+00 9.383E-01 5.389E-01 4.412E-01 6.923E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.266E+17 5.310E-01  
179 6.269E-03 5.723E-02 4.670E+01 2.272E+07 4.270E+00 9.173E-01 5.389E-01 4.412E-01 6.917E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.260E+17 5.319E-01  
177 7.642E-03 6.118E-02 4.654E+01 2.267E+07 5.092E+00 8.952E-01 5.389E-01 4.412E-01 6.910E-05 9.843E-03 4.580E-03 1.840E-03 6.800E-04 1.253E+17 5.329E-01  
175 9.122E-03 6.515E-02 4.637E+01 2.261E+07 5.995E+00 8.720E-01 5.389E-01 4.412E-01 6.903E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.246E+17 5.340E-01  
173 1.100E-02 6.917E-02 4.620E+01 2.256E+07 6.980E+00 8.478E-01 5.389E-01 4.412E-01 6.896E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.238E+17 5.352E-01  
171 1.302E-02 7.324E-02 4.601E+01 2.250E+07 8.047E+00 8.226E-01 5.389E-01 4.412E-01 6.888E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.229E+17 5.364E-01  
169 1.531E-02 7.737E-02 4.580E+01 2.243E+07 9.195E+00 7.963E-01 5.389E-01 4.412E-01 6.880E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.220E+17 5.378E-01  
167 1.790E-02 8.157E-02 4.558E+01 2.236E+07 1.042E+01 7.690E-01 5.389E-01 4.412E-01 6.871E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.211E+17 5.392E-01  
165 2.080E-02 8.585E-02 4.535E+01 2.229E+07 1.173E+01 7.409E-01 5.389E-01 4.412E-01 6.862E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.200E+17 5.408E-01  
163 2.406E-02 9.022E-02 4.510E+01 2.221E+07 1.311E+01 7.118E-01 5.389E-01 4.412E-01 6.852E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.189E+17 5.426E-01  
161 2.772E-02 9.468E-02 4.484E+01 2.212E+07 1.456E+01 6.818E-01 5.389E-01 4.412E-01 6.842E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.178E+17 5.444E-01  
159 3.181E-02 9.925E-02 4.455E+01 2.203E+07 1.608E+01 6.511E-01 5.389E-01 4.412E-01 6.832E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.166E+17 5.464E-01  
157 3.638E-02 1.039E-01 4.425E+01 2.194E+07 1.765E+01 6.196E-01 5.389E-01 4.412E-01 6.822E-05 9.844E-03 4.580E-03 1.840E-03 6.800E-04 1.153E+17 5.485E-01  
155 4.147E-02 1.087E-01 4.393E+01 2.183E+07 1.927E+01 5.874E-01 5.389E-01 4.412E-01 6.810E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.139E+17 5.508E-01  
153 4.715E-02 1.137E-01 4.358E+01 2.172E+07 2.093E+01 5.546E-01 5.389E-01 4.412E-01 6.799E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.124E+17 5.533E-01  
151 5.346E-02 1.187E-01 4.322E+01 2.160E+07 2.260E+01 5.213E-01 5.389E-01 4.412E-01 6.787E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.108E+17 5.559E-01  
149 6.047E-02 1.239E-01 4.283E+01 2.148E+07 2.429E+01 4.876E-01 5.389E-01 4.412E-01 6.775E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.092E+17 5.587E-01  
147 6.825E-02 1.293E-01 4.241E+01 2.134E+07 2.598E+01 4.537E-01 5.389E-01 4.412E-01 6.762E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.074E+17 5.618E-01  
145 7.687E-02 1.348E-01 4.197E+01 2.120E+07 2.766E+01 4.197E-01 5.389E-01 4.412E-01 6.749E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.056E+17 5.651E-01  
143 8.641E-02 1.404E-01 4.151E+01 2.104E+07 2.930E+01 3.858E-01 5.389E-01 4.412E-01 6.736E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.037E+17 5.686E-01  
141 9.695E-02 1.463E-01 4.101E+01 2.088E+07 3.089E+01 3.521E-01 5.389E-01 4.412E-01 6.722E-05 9.845E-03 4.580E-03 1.840E-03 6.800E-04 1.016E+17 5.723E-01  
139 1.086E-01 1.523E-01 4.048E+01 2.070E+07 3.243E+01 3.189E-01 5.389E-01 4.412E-01 6.707E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 9.946E+16 5.764E-01  
137 1.214E-01 1.585E-01 3.992E+01 2.052E+07 3.389E+01 2.861E-01 5.389E-01 4.412E-01 6.692E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 9.719E+16 5.807E-01  
135 1.356E-01 1.649E-01 3.933E+01 2.032E+07 3.526E+01 2.541E-01 5.389E-01 4.412E-01 6.677E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 9.492E+16 5.854E-01  
133 1.511E-01 1.715E-01 3.870E+01 2.011E+07 3.654E+01 2.230E-01 5.389E-01 4.412E-01 6.661E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 9.233E+16 5.904E-01  
131 1.682E-01 1.783E-01 3.804E+01 1.988E+07 3.772E+01 1.930E-01 5.389E-01 4.412E-01 6.644E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 8.972E+16 5.959E-01  
129 1.869E-01 1.854E-01 3.734E+01 1.964E+07 3.879E+01 1.645E-01 5.389E-01 4.412E-01 6.627E-05 9.846E-03 4.580E-03 1.840E-03 6.800E-04 8.700E+16 6.021E-01  
127 2.071E-01 1.927E-01 3.660E+01 1.939E+07 3.975E+01 1.374E-01 5.389E-01 4.412E-01 6.609E-05 9.847E-03 4.581E-03 1.840E-03 6.800E-04 8.417E+16 6.087E-01  
125 2.298E-01 2.002E-01 3.583E+01 1.912E+07 4.061E+01 1.117E-01 5.389E-01 4.412E-01 6.590E-05 9.847E-03 4.581E-03 1.840E-03 6.800E-04 8.123E+16 6.158E-01  
123 2.543E-01 2.080E-01 3.501E+01 1.883E+07 4.135E+01 8.763E-02 5.389E-01 4.412E-01 6.570E-05 9.847E-03 4.581E-03 1.840E-03 6.800E-04 7.817E+16 6.234E-01  
121 2.810E-01 2.160E-01 3.415E+01 1.853E+07 4.200E+01 6.522E-02 5.389E-01 4.412E-01 6.550E-05 9.847E-03 4.581E-03 1.840E-03 6.800E-04 7.501E+16 6.316E-01  
119 3.099E-01 2.230E-01 3.324E+01 1.821E+07 4.256E+01 4.457E-02 5.390E-01 4.412E-01 6.527E-05 9.847E-03 4.581E-03 1.840E-03 6.800E-04 7.176E+16 6.403E-01  
117 3.414E-01 2.330E-01 3.230E+01 1.787E+07 4.303E+01 2.574E-02 5.390E-01 4.411E-01 6.502E-05 9.847E-03 4.581E-03 1.840E-03 6.800E-04 6.841E+16 6.497E-01  
115 3.754E-01 2.419E-01 3.131E+01 1.751E+07 4.342E+01 9.515E-03 5.390E-01 4.411E-01 6.474E-05 9.848E-03 4.581E-03 1.840E-03 6.800E-04 6.497E+16 6.608E-01  
113 4.122E-01 2.511E-01 3.028E+01 1.713E+07 4.376E+01 4.582E-03 5.390E-01 4.411E-01 6.443E-05 9.848E-03 4.581E-03 1.840E-03 6.800E-04 6.147E+16 6.734E-01  
111 4.517E-01 2.607E-01 2.919E+01 1.675E+07 4.404E+01 1.802E-02 5.390E-01 4.411E-01 6.403E-05 9.848E-03 4.582E-03 1.840E-03 6.800E-04 5.790E+16 6.862E-01  
109 4.943E-01 2.706E-01 2.803E+01 1.635E+07 4.427E+01 3.124E-02 5.390E-01 4.411E-01 6.335E-05 9.848E-03 4.583E-03 1.840E-03 6.800E-04 5.428E+16 6.989E-01  
107 5.398E-01 2.808E-01 2.677E+01 1.595E+07 4.447E+01 4.418E-02 5.407E-01 4.394E-01 6.155E-05 9.833E-03 4.615E-03 1.840E-03 6.800E-04 5.063E+16 7.116E-01  
105 5.882E-01 2.919E-01 2.521E+01 1.554E+07 4.465E+01 4.720E-02 5.630E-01 3.266E-01 2.579E-05 6.741E-03 8.184E-03 1.840E-03 6.800E-04 4.699E+16 7.440E-01  
103 6.397E-01 3.042E-01 2.143E+01 1.512E+07 4.482E+01 5.491E-02 6.886E-01 2.909E-01 1.905E-05 5.249E-03 9.897E-03 1.840E-03 6.800E-04 4.341E+16 7.652E-01  
101 6.945E-01 3.170E-01 2.020E+01 1.470E+07 4.498E+01 6.505E-02 6.920E-01 2.874E-01 1.766E-05 5.139E-03 1.003E-02 1.840E-03 6.800E-04 3.989E+16 7.807E-01  
99 7.526E-01 3.303E-01 1.900E+01 1.428E+07 4.512E+01 7.569E-02 6.933E-01 2.861E-01 1.668E-05 5.132E-03 1.003E-02 1.840E-03 6.800E-04 3.646E+16 7.949E-01  
97 8.140E-01 3.441E-01 1.778E+01 1.385E+07 4.523E+01 8.534E-02 6.944E-01 2.850E-01 1.600E-05 5.131E-03 1.004E-02 1.840E-03 6.800E-04 3.313E+16 8.116E-01  
95 8.787E-01 3.584E-01 1.655E+01 1.343E+07 4.533E+01 9.384E-02 6.953E-01 2.841E-01 2.823E-05 5.115E-03 1.004E-02 1.840E-03 6.800E-04 2.991E+16 8.313E-01  
93 9.464E-01 3.734E-01 1.532E+01 1.300E+07 4.542E+01 1.028E-01 6.961E-01 2.834E-01 1.723E-04 4.946E-03 1.004E-02 1.840E-03 6.800E-04 2.682E+16 8.498E-01  
91 1.017E+00 3.889E-01 1.410E+01 1.257E+07 4.549E+01 1.122E-01 6.968E-01 2.827E-01 6.838E-04 4.349E-03 1.004E-02 1.840E-03 6.800E-04 2.388E+16 8.673E-01  
89 1.090E+00 4.051E-01 1.289E+01 1.214E+07 4.555E+01 1.195E-01 6.975E-01 2.822E-01 1.517E-03 3.377E-03 1.004E-02 1.840E-03 6.800E-04 2.109E+16 8.916E-01  
87 1.166E+00 4.220E-01 1.170E+01 1.171E+07 4.560E+01 1.276E-01 6.981E-01 2.817E-01 2.332E-03 2.426E-03 1.004E-02 1.840E-03 6.800E-04 1.847E+16 9.143E-01  
85 1.244E+00 4.398E-01 1.054E+01 1.128E+07 4.564E+01 1.367E-01 6.986E-01 2.813E-01 2.906E-03 1.757E-03 1.004E-02 1.840E-03 6.800E-04 1.603E+16 9.344E-01  
83 1.323E+00 4.583E-01 9.417E+00 1.086E+07 4.567E+01 1.434E-01 6.990E-01 2.810E-01 3.232E-03 1.375E-03 1.004E-02 1.840E-03 6.800E-04 1.378E+16 9.646E-01  
81 1.404E+00 4.778E-01 8.342E+00 1.043E+07 4.569E+01 1.500E-01 6.992E-01 2.807E-01 3.395E-03 1.185E-03 1.004E-02 1.840E-03 6.800E-04 1.173E+16 9.968E-01  
79 1.485E+00 4.983E-01 7.320E+00 1.000E+07 4.570E+01 1.580E-01 6.994E-01 2.805E-01 3.469E-03 1.099E-03 1.004E-02 1.840E-03 6.800E-04 9.875E+15 1.026E+00  
77 1.567E+00 5.200E-01 6.358E+00 9.582E+06 4.571E+01 1.635E-01 6.996E-01 2.804E-01 3.501E-03 1.063E-03 1.004E-02 1.840E-03 6.800E-04 8.215E+15 1.069E+00  
75 1.648E+00 5.429E-01 5.463E+00 9.160E+06 4.572E+01 1.699E-01 6.997E-01 2.803E-01 3.513E-03 1.048E-03 1.004E-02 1.840E-03 6.800E-04 6.748E+15 1.111E+00  
73 1.728E+00 5.672E-01 4.638E+00 8.741E+06 4.572E+01 1.757E-01 6.998E-01 2.802E-01 3.518E-03 1.043E-03 1.004E-02 1.840E-03 6.800E-04 5.466E+15 1.162E+00  
71 1.807E+00 5.931E-01 3.887E+00 8.321E+06 4.572E+01 1.802E-01 6.999E-01 2.801E-01 3.519E-03 1.041E-03 1.004E-02 1.840E-03 6.800E-04 4.361E+15 1.225E+00  
69 1.884E+00 6.209E-01 3.209E+00 7.902E+06 4.572E+01 1.855E-01 6.999E-01 2.801E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 3.419E+15 1.291E+00  
67 1.959E+00 6.510E-01 2.605E+00 7.480E+06 4.572E+01 1.885E-01 6.999E-01 2.801E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 2.628E+15 1.382E+00  
65 2.032E+00 6.840E-01 2.073E+00 7.052E+06 4.572E+01 1.925E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 1.972E+15 1.479E+00  
63 2.102E+00 7.204E-01 1.610E+00 6.616E+06 4.572E+01 1.945E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 1.437E+15 1.609E+00  
61 2.169E+00 7.616E-01 1.212E+00 6.165E+06 4.572E+01 1.970E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 1.008E+15 1.760E+00  
59 2.234E+00 8.092E-01 8.750E-01 5.691E+06 4.572E+01 1.982E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 6.721E+14 1.958E+00  
57 2.295E+00 8.658E-01 5.971E-01 5.185E+06 4.571E+01 1.981E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 4.181E+14 2.224E+00  
55 2.352E+00 9.349E-01 3.771E-01 4.635E+06 4.571E+01 1.970E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 2.362E+14 2.582E+00  
53 2.402E+00 1.021E+00 2.153E-01 4.033E+06 4.571E+01 1.917E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 1.174E+14 3.113E+00  
51 2.442E+00 1.127E+00 1.096E-01 3.383E+06 4.571E+01 1.789E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 5.014E+13 3.882E+00  
49 2.470E+00 1.250E+00 5.041E-02 2.707E+06 4.571E+01 1.584E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 1.847E+13 4.779E+00  
47 2.486E+00 1.381E+00 2.153E-02 2.074E+06 4.571E+01 1.503E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 6.047E+12 5.236E+00  
45 2.494E+00 1.510E+00 8.627E-03 1.561E+06 4.571E+01 1.571E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 1.825E+12 5.413E+00  
43 2.498E+00 1.628E+00 3.286E-03 1.174E+06 4.571E+01 1.671E-01 7.000E-01 2.800E-01 3.520E-03 1.040E-03 1.004E-02 1.840E-03 6.800E-04 5.235E+11 5.762E+00  
41 2.499E+00 1.734E+00 1.203E-03 8.917E+05 4.571E+01 1.792E-01 7.000E

Output RGB : K m r rho T L H1 He4 kappa P C12 N14 O16 Ne20 Mg24 grada

199 6.124E-05 1.991E-03 1.090E+04 5.343E+07 7.901E-04 0.000E+00 9.806E-01 4.017E-01 4.271E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.933E-01  
198 1.784E-04 2.847E-03 1.084E+04 5.334E+07 2.294E-03 0.000E+00 9.806E-01 4.022E-01 4.238E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.933E-01  
197 3.377E-04 3.526E-03 1.078E+04 5.325E+07 4.348E-03 0.000E+00 9.806E-01 4.027E-01 4.203E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
196 5.356E-04 4.117E-03 1.071E+04 5.316E+07 6.904E-03 0.000E+00 9.806E-01 4.033E-01 4.168E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
195 7.713E-04 4.656E-03 1.064E+04 5.306E+07 9.948E-03 0.000E+00 9.806E-01 4.039E-01 4.131E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
194 1.045E-03 5.158E-03 1.057E+04 5.296E+07 1.348E-02 0.000E+00 9.806E-01 4.045E-01 4.093E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
193 1.357E-03 5.636E-03 1.049E+04 5.286E+07 1.751E-02 0.000E+00 9.806E-01 4.051E-01 4.054E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
192 1.709E-03 6.094E-03 1.042E+04 5.275E+07 2.205E-02 0.000E+00 9.806E-01 4.058E-01 4.013E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
191 2.101E-03 6.540E-03 1.034E+04 5.263E+07 2.713E-02 0.000E+00 9.806E-01 4.065E-01 3.971E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
190 2.537E-03 6.975E-03 1.026E+04 5.251E+07 3.275E-02 0.000E+00 9.806E-01 4.072E-01 3.928E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
189 3.017E-03 7.402E-03 1.017E+04 5.239E+07 3.895E-02 0.000E+00 9.806E-01 4.079E-01 3.883E+19 1.823E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
188 3.544E-03 7.823E-03 1.008E+04 5.226E+07 4.575E-02 0.000E+00 9.806E-01 4.087E-01 3.837E+19 1.800E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
187 4.120E-03 8.241E-03 9.992E+03 5.212E+07 5.318E-02 0.000E+00 9.806E-01 4.095E-01 3.790E+19 1.793E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.934E-01  
186 4.747E-03 8.656E-03 9.897E+03 5.198E+07 6.127E-02 0.000E+00 9.806E-01 4.102E-01 3.741E+19 1.786E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.935E-01  
185 5.428E-03 9.069E-03 9.800E+03 5.184E+07 7.006E-02 0.000E+00 9.806E-01 4.110E-01 3.691E+19 1.779E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.935E-01  
184 6.166E-03 9.482E-03 9.700E+03 5.169E+07 7.958E-02 0.000E+00 9.806E-01 4.118E-01 3.639E+19 1.771E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.935E-01  
183 6.963E-03 9.895E-03 9.596E+03 5.153E+07 8.986E-02 0.000E+00 9.806E-01 4.126E-01 3.586E+19 1.763E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.935E-01  
182 7.822E-03 1.031E-02 9.489E+03 5.137E+07 1.010E-01 0.000E+00 9.806E-01 4.134E-01 3.531E+19 1.755E-04 1.293E-02 9.062E-04 1.840E-03 6.800E-04 3.935E-01  
181 8.746E-03 1.072E-02 9.379E+03 5.120E+07 1.129E-01 0.000E+00 9.806E-01 4.143E-01 3.475E+19 1.747E-04 1.294E-02 9.062E-04 1.840E-03 6.800E-04 3.935E-01  
180 9.739E-03 1.114E-02 9.265E+03 5.102E+07 1.257E-01 0.000E+00 9.806E-01 4.152E-01 3.418E+19 1.737E-04 1.294E-02 9.062E-04 1.840E-03 6.800E-04 3.935E-01  
179 1.080E-02 1.156E-02 9.148E+03 5.084E+07 1.394E-01 0.000E+00 9.806E-01 4.161E-01 3.359E+19 1.728E-04 1.294E-02 9.063E-04 1.840E-03 6.800E-04 3.935E-01  
178 1.194E-02 1.199E-02 9.027E+03 5.065E+07 1.542E-01 0.000E+00 9.806E-01 4.170E-01 3.299E+19 1.718E-04 1.294E-02 9.063E-04 1.840E-03 6.800E-04 3.936E-01  
177 1.316E-02 1.242E-02 8.903E+03 5.045E+07 1.699E-01 0.000E+00 9.806E-01 4.180E-01 3.237E+19 1.708E-04 1.294E-02 9.063E-04 1.840E-03 6.800E-04 3.936E-01  
176 1.447E-02 1.285E-02 8.775E+03 5.025E+07 1.867E-01 0.000E+00 9.806E-01 4.190E-01 3.174E+19 1.697E-04 1.294E-02 9.063E-04 1.840E-03 6.800E-04 3.936E-01  
175 1.585E-02 1.329E-02 8.643E+03 5.004E+07 2.046E-01 0.000E+00 9.806E-01 4.203E-01 3.109E+19 1.686E-04 1.294E-02 9.063E-04 1.840E-03 6.800E-04 3.936E-01  
174 1.733E-02 1.373E-02 8.508E+03 4.982E+07 2.237E-01 0.000E+00 9.806E-01 4.218E-01 3.044E+19 1.675E-04 1.294E-02 9.063E-04 1.840E-03 6.800E-04 3.936E-01  
173 1.890E-02 1.418E-02 8.370E+03 4.959E+07 2.440E-01 0.000E+00 9.806E-01 4.234E-01 2.976E+19 1.663E-04 1.294E-02 9.063E-04 1.840E-03 6.800E-04 3.936E-01  
172 2.057E-02 1.464E-02 8.228E+03 4.935E+07 2.655E-01 0.000E+00 9.806E-01 4.251E-01 2.908E+19 1.650E-04 1.295E-02 9.063E-04 1.840E-03 6.800E-04 3.936E-01  
171 2.235E-02 1.510E-02 8.082E+03 4.911E+07 2.883E-01 0.000E+00 9.806E-01 4.268E-01 2.838E+19 1.637E-04 1.295E-02 9.063E-04 1.840E-03 6.800E-04 3.937E-01  
170 2.423E-02 1.557E-02 7.933E+03 4.885E+07 3.125E-01 0.000E+00 9.806E-01 4.286E-01 2.767E+19 1.624E-04 1.295E-02 9.063E-04 1.840E-03 6.800E-04 3.937E-01  
169 2.622E-02 1.604E-02 7.780E+03 4.859E+07 3.381E-01 0.000E+00 9.806E-01 4.304E-01 2.695E+19 1.610E-04 1.295E-02 9.064E-04 1.840E-03 6.800E-04 3.937E-01  
168 2.832E-02 1.653E-02 7.624E+03 4.832E+07 3.651E-01 0.000E+00 9.806E-01 4.323E-01 2.622E+19 1.596E-04 1.295E-02 9.064E-04 1.840E-03 6.800E-04 3.937E-01  
167 3.054E-02 1.702E-02 7.465E+03 4.804E+07 3.937E-01 0.000E+00 9.806E-01 4.342E-01 2.548E+19 1.581E-04 1.295E-02 9.064E-04 1.840E-03 6.800E-04 3.937E-01  
166 3.289E-02 1.752E-02 7.302E+03 4.774E+07 4.238E-01 0.000E+00 9.806E-01 4.362E-01 2.473E+19 1.567E-04 1.296E-02 9.064E-04 1.840E-03 6.800E-04 3.938E-01  
165 3.537E-02 1.803E-02 7.136E+03 4.744E+07 4.555E-01 0.000E+00 9.806E-01 4.383E-01 2.398E+19 1.552E-04 1.296E-02 9.064E-04 1.840E-03 6.800E-04 3.938E-01  
164 3.797E-02 1.855E-02 6.966E+03 4.713E+07 4.889E-01 0.000E+00 9.806E-01 4.404E-01 2.321E+19 1.537E-04 1.296E-02 9.064E-04 1.840E-03 6.800E-04 3.938E-01  
163 4.071E-02 1.908E-02 6.794E+03 4.681E+07 5.240E-01 0.000E+00 9.806E-01 4.426E-01 2.244E+19 1.522E-04 1.296E-02 9.065E-04 1.840E-03 6.800E-04 3.938E-01  
162 4.359E-02 1.961E-02 6.619E+03 4.647E+07 5.609E-01 0.000E+00 9.806E-01 4.448E-01 2.167E+19 1.507E-04 1.296E-02 9.065E-04 1.840E-03 6.800E-04 3.938E-01  
161 4.661E-02 2.016E-02 6.441E+03 4.613E+07 5.996E-01 0.000E+00 9.806E-01 4.470E-01 2.089E+19 1.492E-04 1.296E-02 9.065E-04 1.840E-03 6.800E-04 3.939E-01  
160 4.978E-02 2.072E-02 6.261E+03 4.577E+07 6.401E-01 0.000E+00 9.806E-01 4.493E-01 2.010E+19 1.478E-04 1.297E-02 9.065E-04 1.840E-03 6.800E-04 3.939E-01  
159 5.310E-02 2.130E-02 6.078E+03 4.541E+07 6.826E-01 0.000E+00 9.806E-01 4.517E-01 1.932E+19 1.464E-04 1.297E-02 9.065E-04 1.840E-03 6.800E-04 3.939E-01  
158 5.656E-02 2.188E-02 5.893E+03 4.503E+07 7.270E-01 0.000E+00 9.806E-01 4.540E-01 1.854E+19 1.450E-04 1.297E-02 9.066E-04 1.840E-03 6.800E-04 3.939E-01  
157 6.019E-02 2.248E-02 5.706E+03 4.464E+07 7.733E-01 0.000E+00 9.806E-01 4.565E-01 1.775E+19 1.436E-04 1.297E-02 9.066E-04 1.840E-03 6.800E-04 3.940E-01  
156 6.396E-02 2.309E-02 5.517E+03 4.424E+07 8.217E-01 0.000E+00 9.806E-01 4.593E-01 1.697E+19 1.424E-04 1.297E-02 9.066E-04 1.840E-03 6.800E-04 3.940E-01  
155 6.790E-02 2.371E-02 5.327E+03 4.383E+07 8.720E-01 0.000E+00 9.806E-01 4.622E-01 1.620E+19 1.412E-04 1.297E-02 9.067E-04 1.840E-03 6.800E-04 3.940E-01  
154 7.199E-02 2.434E-02 5.136E+03 4.341E+07 9.244E-01 0.000E+00 9.806E-01 4.651E-01 1.543E+19 1.401E-04 1.297E-02 9.067E-04 1.840E-03 6.800E-04 3.940E-01  
153 7.625E-02 2.500E-02 4.944E+03 4.298E+07 9.788E-01 0.000E+00 9.806E-01 4.680E-01 1.467E+19 1.391E-04 1.298E-02 9.067E-04 1.840E-03 6.800E-04 3.941E-01  
152 8.066E-02 2.566E-02 4.751E+03 4.254E+07 1.035E+00 0.000E+00 9.806E-01 4.709E-01 1.391E+19 1.382E-04 1.298E-02 9.068E-04 1.840E-03 6.800E-04 3.941E-01  
151 8.523E-02 2.634E-02 4.558E+03 4.208E+07 1.094E+00 0.000E+00 9.806E-01 4.737E-01 1.317E+19 1.374E-04 1.298E-02 9.068E-04 1.840E-03 6.800E-04 3.941E-01  
150 8.996E-02 2.704E-02 4.365E+03 4.162E+07 1.154E+00 0.000E+00 9.806E-01 4.765E-01 1.244E+19 1.367E-04 1.298E-02 9.069E-04 1.840E-03 6.800E-04 3.942E-01  
149 9.484E-02 2.776E-02 4.172E+03 4.114E+07 1.217E+00 0.000E+00 9.806E-01 4.793E-01 1.173E+19 1.361E-04 1.298E-02 9.069E-04 1.840E-03 6.800E-04 3.942E-01  
148 9.987E-02 2.849E-02 3.981E+03 4.066E+07 1.281E+00 0.000E+00 9.806E-01 4.819E-01 1.102E+19 1.355E-04 1.298E-02 9.070E-04 1.840E-03 6.800E-04 3.942E-01  
147 1.050E-01 2.924E-02 3.790E+03 4.017E+07 1.348E+00 0.000E+00 9.806E-01 4.844E-01 1.034E+19 1.351E-04 1.298E-02 9.070E-04 1.840E-03 6.800E-04 3.942E-01  
146 1.104E-01 3.001E-02 3.601E+03 3.967E+07 1.417E+00 0.000E+00 9.806E-01 4.870E-01 9.674E+18 1.347E-04 1.298E-02 9.071E-04 1.840E-03 6.800E-04 3.943E-01  
145 1.158E-01 3.080E-02 3.414E+03 3.917E+07 1.487E+00 0.000E+00 9.806E-01 4.899E-01 9.027E+18 1.345E-04 1.298E-02 9.072E-04 1.840E-03 6.800E-04 3.943E-01  
144 1.214E-01 3.161E-02 3.230E+03 3.866E+07 1.559E+00 0.000E+00 9.806E-01 4.927E-01 8.402E+18 1.343E-04 1.298E-02 9.073E-04 1.840E-03 6.800E-04 3.943E-01  
143 1.271E-01 3.245E-02 3.048E+03 3.814E+07 1.633E+00 0.000E+00 9.806E-01 4.957E-01 7.798E+18 1.342E-04 1.298E-02 9.074E-04 1.840E-03 6.800E-04 3.943E-01  
142 1.329E-01 3.330E-02 2.869E+03 3.762E+07 1.709E+00 0.000E+00 9.806E-01 4.986E-01 7.218E+18 1.341E-04 1.298E-02 9.075E-04 1.840E-03 6.800E-04 3.944E-01  
141 1.389E-01 3.418E-02 2.694E+03 3.709E+07 1.786E+00 0.000E+00 9.806E-01 5.012E-01 6.661E+18 1.341E-04 1.298E-02 9.076E-04 1.840E-03 6.800E-04 3.944E-01  
140 1.449E-01 3.508E-02 2.523E+03 3.657E+07 1.865E+00 0.000E+00 9.806E-01 5.033E-01 6.130E+18 1.342E-04 1.298E-02 9.077E-04 1.840E-03 6.800E-04 3.944E-01  
139 1.510E-01 3.601E-02 2.356E+03 3.605E+07 1.945E+00 0.000E+00 9.806E-01 5.050E-01 5.624E+18 1.344E-04 1.298E-02 9.079E-04 1.840E-03 6.800E-04 3.944E-01  
138 1.571E-01 3.697E-02 2.194E+03 3.552E+07 2.026E+00 0.000E+00 9.806E-01 5.060E-01 5.144E+18 1.346E-04 1.298E-02 9.081E-04 1.840E-03 6.800E-04 3.944E-01  
137 1.634E-01 3.795E-02 2.037E+03 3.501E+07 2.109E+00 0.000E+00 9.806E-01 5.076E-01 4.691E+18 1.349E-04 1.298E-02 9.083E-04 1.840E-03 6.800E-04 3.944E-01  
136 1.696E-01 3.897E-02 1.886E+03 3.450E+07 2.192E+00 0.000E+00 9.806E-01 5.086E-01 4.264E+18 1.352E-04 1.298E-02 9.086E-04 1.840E-03 6.800E-04 3.945E-01  
135 1.759E-01 4.001E-02 1.740E+03 3.400E+07 2.277E+00 0.000E+00 9.806E-01 5.091E-01 3.863E+18 1.356E-04 1.298E-02 9.089E-04 1.840E-03 6.800E-04 3.945E-01  
134 1.822E-01 4.109E-02 1.600E+03 3.351E+07 2.361E+00 0.000E+00 9.806E-01 5.097E-01 3.489E+18 1.362E-04 1.298E-02 9.093E-04 1.840E-03 6.800E-04 3.945E-01  
133 1.885E-01 4.221E-02 1.466E+03 3.303E+07 2.447E+00 0.000E+00 9.806E-01 5.093E-01 3.142E+18 1.368E-04 1.298E-02 9.098E-04 1.840E-03 6.800E-04 3.945E-01  
132 1.948E-01 4.336E-02 1.339E+03 3.257E+07 2.532E+00 0.000E+00 9.806E-01 5.078E-01 2.819E+18 1.374E-04 1.297E-02 9.104E-04 1.840E-03 6.800E-04 3.945E-01  
131 2.011E-01 4.455E-02 1.218E+03 3.213E+07 2.617E+00 0.000E+00 9.806E-01 5.049E-01 2.522E+18 1.382E-04 1.297E-02 9.111E-04 1.840E-03 6.800E-04 3.944E-01  
130 2.073E-01 4.578E-02 1.104E+03 3.171E+07 2.703E+00 0.000E+00 9.806E-01 5.008E-01 2.249E+18 1.390E-04 1.297E-02 9.120E-04 1.840E-03 6.800E-04 3.944E-01  
129 2.135E-01 4.706E-02 9.968E+02 3.131E+07 2.787E+00 0.000E+00 9.806E-01 4.964E-01 1.999E+18 1.399E-04 1.297E-02 9.130E-04 1.840E-03 6.800E-04 3.944E-01  
128 2.195E-01 4.839E-02 8.966E+02 3.094E+07 2.871E+00 0.000E+00 9.806E-01 4.930E-01 1.771E+18 1.408E-04 1.297E-02 9.141E-04 1.840E-03 6.800E-04 3.943E-01  
127 2.256E-01 4.977E-02 8.033E+02 3.059E+07 2.953E+00 0.000E+00 9.806E-01 4.882E-01 1.564E+18 1.417E-04 1.297E-02 9.153E-04 1.840E-03 6.800E-04 3.943E-01  
126 2.315E-01 5.121E-02 7.169E+02 3.027E+07 3.034E+00 0.000E+00 9.806E-01 4.820E-01 1.378E+18 1.426E-04 1.296E-02 9.166E-04 1.840E-03 6.800E-04 3.942E-01  
125 2.373E-01 5.271E-02 6.374E+02 2.998E+07 3.112E+00 0.000E+00 9.806E-01 4.743E-01 1.210E+18 1.435E-04 1.296E-02 9.178E-04 1.840E-03 6.800E-04 3.941E-01  
124 2.430E-01 5.427E-02 5.645E+02 2.971E+07 3.188E+00 0.000E+00 9.806E-01 4.653E-01 1.060E+18 1.444E-04 1.296E-02 9.189E-04 1.840E-03 6.800E-04 3.940E-01  
123 2.486E-01 5.591E-02 4.981E+02 2.947E+07 3.265E+00 0.000E+00 9.806E-01 4.568E-01 9.253E+17 1.454E-04 1.296E-02 9.199E-04 1.840E-03 6.800E-04 3.938E-01  
122 2.541E-01 5.763E-02 4.379E+02 2.926E+07 3.355E+00 6.803E-06 9.806E-01 4.474E-01 8.061E+17 1.459E-04 1.295E-02 9.205E-04 1.840E-03 6.800E-04 3.936E-01  
121 2.595E-01 5.943E-02 3.837E+02 2.907E+07 3.497E+00 3.000E-05 9.805E-01 4.371E-01 7.005E+17 1.460E-04 1.295E-02 9.209E-04 1.840E-03 6.800E-04 3.934E-01  
120 2.648E-01 6.132E-02 3.351E+02 2.889E+07



91 3.950E-01 2.000E-01 5.643E+00 1.146E+07 5.928E+01 2.677E-01 7.127E-01 5.830E-01 5.839E+15 6.225E-05 1.211E-02 1.993E-03 1.840E-03 6.800E-04 3.901E-01  
90 3.997E-01 2.101E-01 4.865E+00 1.101E+07 5.922E+01 2.768E-01 7.036E-01 5.954E-01 4.887E+15 6.159E-05 1.205E-02 2.062E-03 1.840E-03 6.800E-04 3.900E-01  
89 4.045E-01 2.210E-01 4.182E+00 1.057E+07 5.917E+01 2.861E-01 6.943E-01 6.106E-01 4.078E+15 6.091E-05 1.199E-02 2.137E-03 1.840E-03 6.800E-04 3.899E-01  
88 4.095E-01 2.327E-01 3.585E+00 1.015E+07 5.911E+01 2.956E-01 6.848E-01 6.228E-01 3.393E+15 6.019E-05 1.192E-02 2.218E-03 1.840E-03 6.800E-04 3.898E-01  
87 4.146E-01 2.454E-01 3.062E+00 9.738E+06 5.904E+01 3.055E-01 6.749E-01 6.410E-01 2.812E+15 5.942E-05 1.184E-02 2.307E-03 1.840E-03 6.800E-04 3.896E-01  
86 4.200E-01 2.593E-01 2.605E+00 9.340E+06 5.898E+01 3.157E-01 6.646E-01 6.634E-01 2.321E+15 5.862E-05 1.176E-02 2.406E-03 1.840E-03 6.800E-04 3.894E-01  
85 4.255E-01 2.745E-01 2.206E+00 8.952E+06 5.891E+01 3.264E-01 6.539E-01 6.822E-01 1.907E+15 5.776E-05 1.166E-02 2.514E-03 1.840E-03 6.800E-04 3.892E-01  
84 4.313E-01 2.914E-01 1.859E+00 8.572E+06 5.883E+01 3.376E-01 6.427E-01 7.112E-01 1.558E+15 5.684E-05 1.156E-02 2.636E-03 1.840E-03 6.800E-04 3.890E-01  
83 4.374E-01 3.101E-01 1.559E+00 8.200E+06 5.875E+01 3.495E-01 6.309E-01 7.419E-01 1.265E+15 5.585E-05 1.144E-02 2.772E-03 1.840E-03 6.800E-04 3.887E-01  
82 4.440E-01 3.311E-01 1.298E+00 7.834E+06 5.866E+01 3.620E-01 6.183E-01 7.740E-01 1.021E+15 5.478E-05 1.131E-02 2.926E-03 1.840E-03 6.800E-04 3.884E-01  
81 4.510E-01 3.548E-01 1.075E+00 7.473E+06 5.856E+01 3.753E-01 6.049E-01 8.158E-01 8.175E+14 5.360E-05 1.116E-02 3.100E-03 1.840E-03 6.800E-04 3.881E-01  
80 4.585E-01 3.816E-01 8.834E-01 7.119E+06 5.846E+01 3.896E-01 5.907E-01 8.560E-01 6.498E+14 5.231E-05 1.098E-02 3.297E-03 1.840E-03 6.800E-04 3.878E-01  
79 4.667E-01 4.122E-01 7.213E-01 6.770E+06 5.835E+01 4.049E-01 5.754E-01 9.100E-01 5.126E+14 5.087E-05 1.079E-02 3.522E-03 1.840E-03 6.800E-04 3.874E-01  
78 4.756E-01 4.472E-01 5.854E-01 6.429E+06 5.823E+01 4.211E-01 5.591E-01 9.643E-01 4.016E+14 4.929E-05 1.057E-02 3.777E-03 1.840E-03 6.800E-04 3.870E-01  
77 4.854E-01 4.873E-01 4.726E-01 6.096E+06 5.810E+01 4.385E-01 5.417E-01 1.030E+00 3.128E+14 4.755E-05 1.032E-02 4.066E-03 1.840E-03 6.800E-04 3.866E-01  
76 4.962E-01 5.331E-01 3.802E-01 5.774E+06 5.796E+01 4.568E-01 5.233E-01 1.100E+00 2.427E+14 4.565E-05 1.004E-02 4.389E-03 1.840E-03 6.800E-04 3.862E-01  
75 5.080E-01 5.852E-01 3.054E-01 5.466E+06 5.781E+01 4.760E-01 5.041E-01 1.178E+00 1.880E+14 4.362E-05 9.726E-03 4.747E-03 1.840E-03 6.800E-04 3.858E-01  
74 5.210E-01 6.443E-01 2.456E-01 5.173E+06 5.765E+01 4.958E-01 4.842E-01 1.266E+00 1.458E+14 4.153E-05 9.387E-03 5.138E-03 1.840E-03 6.800E-04 3.854E-01  
73 5.352E-01 7.106E-01 1.982E-01 4.898E+06 5.748E+01 5.160E-01 4.639E-01 1.358E+00 1.135E+14 3.949E-05 9.022E-03 5.557E-03 1.840E-03 6.800E-04 3.850E-01  
72 5.509E-01 7.845E-01 1.609E-01 4.640E+06 5.730E+01 5.363E-01 4.436E-01 1.465E+00 8.890E+13 3.774E-05 8.638E-03 5.998E-03 1.840E-03 6.800E-04 3.846E-01  
71 5.680E-01 8.659E-01 1.316E-01 4.401E+06 5.712E+01 5.562E-01 4.236E-01 1.572E+00 7.022E+13 3.662E-05 8.243E-03 6.452E-03 1.840E-03 6.800E-04 3.843E-01  
70 5.868E-01 9.549E-01 1.087E-01 4.180E+06 5.693E+01 5.755E-01 4.043E-01 1.696E+00 5.601E+13 3.672E-05 7.844E-03 6.908E-03 1.840E-03 6.800E-04 3.841E-01  
69 6.072E-01 1.055E+00 9.069E-02 3.975E+06 5.673E+01 5.937E-01 3.861E-01 1.821E+00 4.514E+13 3.890E-05 7.450E-03 7.355E-03 1.840E-03 6.800E-04 3.839E-01  
68 6.295E-01 1.155E+00 7.646E-02 3.787E+06 5.654E+01 6.105E-01 3.692E-01 1.959E+00 3.677E+13 4.448E-05 7.070E-03 7.783E-03 1.840E-03 6.800E-04 3.838E-01  
67 6.536E-01 1.264E+00 6.515E-02 3.611E+06 5.634E+01 6.258E-01 3.539E-01 2.100E+00 3.026E+13 5.527E-05 6.709E-03 8.180E-03 1.840E-03 6.800E-04 3.837E-01  
66 6.796E-01 1.380E+00 5.607E-02 3.449E+06 5.614E+01 6.392E-01 3.404E-01 2.247E+00 2.515E+13 7.375E-05 6.372E-03 8.541E-03 1.840E-03 6.800E-04 3.837E-01  
65 7.077E-01 1.502E+00 4.872E-02 3.297E+06 5.595E+01 6.509E-01 3.287E-01 2.399E+00 2.108E+13 1.031E-04 6.060E-03 8.858E-03 1.840E-03 6.800E-04 3.838E-01  
64 7.379E-01 1.629E+00 4.269E-02 3.155E+06 5.575E+01 6.607E-01 3.188E-01 2.558E+00 1.782E+13 1.470E-04 5.772E-03 9.130E-03 1.840E-03 6.800E-04 3.839E-01  
63 7.702E-01 1.761E+00 3.770E-02 3.022E+06 5.556E+01 6.689E-01 3.106E-01 2.705E+00 1.516E+13 2.098E-04 5.501E-03 9.355E-03 1.840E-03 6.800E-04 3.841E-01  
62 8.048E-01 1.898E+00 3.351E-02 2.896E+06 5.537E+01 6.755E-01 3.040E-01 2.862E+00 1.298E+13 2.958E-04 5.241E-03 9.538E-03 1.840E-03 6.800E-04 3.843E-01  
61 8.416E-01 2.039E+00 2.995E-02 2.776E+06 5.519E+01 6.808E-01 2.988E-01 3.016E+00 1.116E+13 4.089E-04 4.984E-03 9.681E-03 1.840E-03 6.800E-04 3.846E-01  
60 8.808E-01 2.185E+00 2.689E-02 2.661E+06 5.501E+01 6.849E-01 2.947E-01 3.150E+00 9.638E+12 5.521E-04 4.722E-03 9.790E-03 1.840E-03 6.800E-04 3.849E-01  
59 9.224E-01 2.335E+00 2.423E-02 2.552E+06 5.484E+01 6.881E-01 2.915E-01 3.291E+00 8.346E+12 7.266E-04 4.448E-03 9.870E-03 1.840E-03 6.800E-04 3.852E-01  
58 9.665E-01 2.489E+00 2.190E-02 2.447E+06 5.467E+01 6.905E-01 2.890E-01 3.419E+00 7.243E+12 9.317E-04 4.158E-03 9.928E-03 1.840E-03 6.800E-04 3.856E-01  
57 1.013E+00 2.648E+00 1.982E-02 2.346E+06 5.451E+01 6.924E-01 2.872E-01 3.534E+00 6.293E+12 1.164E-03 3.852E-03 9.968E-03 1.840E-03 6.800E-04 3.859E-01  
56 1.062E+00 2.812E+00 1.797E-02 2.248E+06 5.436E+01 6.939E-01 2.857E-01 3.646E+00 5.471E+12 1.417E-03 3.532E-03 9.995E-03 1.840E-03 6.800E-04 3.863E-01  
55 1.114E+00 2.981E+00 1.630E-02 2.153E+06 5.421E+01 6.951E-01 2.846E-01 3.785E+00 4.754E+12 1.684E-03 3.206E-03 1.001E-02 1.840E-03 6.800E-04 3.867E-01  
54 1.168E+00 3.156E+00 1.479E-02 2.059E+06 5.407E+01 6.960E-01 2.838E-01 3.925E+00 4.127E+12 1.954E-03 2.881E-03 1.002E-02 1.840E-03 6.800E-04 3.871E-01  
53 1.225E+00 3.336E+00 1.342E-02 1.966E+06 5.395E+01 6.967E-01 2.831E-01 4.089E+00 3.576E+12 2.219E-03 2.566E-03 1.003E-02 1.840E-03 6.800E-04 3.876E-01  
52 1.285E+00 3.523E+00 1.217E-02 1.871E+06 5.385E+01 6.993E-01 2.807E-01 4.319E+00 3.091E+12 2.288E-03 1.311E-03 1.004E-02 1.840E-03 6.800E-04 3.882E-01  
51 1.347E+00 3.715E+00 1.108E-02 1.771E+06 5.377E+01 6.993E-01 2.806E-01 4.615E+00 2.662E+12 3.310E-03 1.286E-03 1.004E-02 1.840E-03 6.800E-04 3.889E-01  
50 1.412E+00 3.914E+00 1.009E-02 1.669E+06 5.373E+01 6.994E-01 2.806E-01 5.074E+00 2.282E+12 3.312E-03 1.283E-03 1.004E-02 1.840E-03 6.800E-04 3.897E-01  
49 1.480E+00 4.118E+00 9.160E-03 1.568E+06 5.370E+01 6.994E-01 2.806E-01 5.621E+00 1.945E+12 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.904E-01  
48 1.550E+00 4.330E+00 8.283E-03 1.469E+06 5.367E+01 6.994E-01 2.806E-01 6.327E+00 1.646E+12 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.912E-01  
47 1.622E+00 4.549E+00 7.452E-03 1.372E+06 5.364E+01 6.994E-01 2.806E-01 7.185E+00 1.382E+12 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.919E-01  
46 1.696E+00 4.777E+00 6.664E-03 1.275E+06 5.361E+01 6.994E-01 2.806E-01 8.281E+00 1.148E+12 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.926E-01  
45 1.772E+00 5.014E+00 5.916E-03 1.180E+06 5.358E+01 6.994E-01 2.806E-01 9.756E+00 9.420E+11 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.933E-01  
44 1.849E+00 5.261E+00 5.208E-03 1.085E+06 5.356E+01 6.994E-01 2.806E-01 1.176E+00 7.622E+11 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.939E-01  
43 1.927E+00 5.519E+00 4.539E-03 9.915E+05 5.354E+01 6.994E-01 2.806E-01 1.458E+00 6.064E+11 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.945E-01  
42 2.004E+00 5.788E+00 3.908E-03 8.985E+05 5.351E+01 6.994E-01 2.806E-01 1.882E+00 4.728E+11 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.951E-01  
41 2.080E+00 6.070E+00 3.318E-03 8.064E+05 5.350E+01 6.994E-01 2.806E-01 2.533E+00 3.599E+11 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.956E-01  
40 2.153E+00 6.364E+00 2.771E-03 7.155E+05 5.348E+01 6.994E-01 2.806E-01 3.476E+00 2.664E+11 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.960E-01  
39 2.222E+00 6.669E+00 2.268E-03 6.265E+05 5.347E+01 6.994E-01 2.806E-01 4.826E+00 1.908E+11 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.965E-01  
38 2.286E+00 6.983E+00 1.816E-03 5.401E+05 5.346E+01 6.994E-01 2.806E-01 6.690E+00 1.316E+11 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.968E-01  
37 2.341E+00 7.301E+00 1.418E-03 4.579E+05 5.345E+01 6.994E-01 2.806E-01 9.309E+00 8.699E+10 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.970E-01  
36 2.388E+00 7.617E+00 1.078E-03 3.813E+05 5.344E+01 6.994E-01 2.806E-01 1.381E+02 5.503E+10 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.971E-01  
35 2.424E+00 7.921E+00 8.000E-04 3.122E+05 5.344E+01 6.994E-01 2.806E-01 2.235E+02 3.339E+10 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.970E-01  
34 2.451E+00 8.201E+00 5.814E-04 2.523E+05 5.344E+01 6.994E-01 2.806E-01 4.043E+02 1.957E+10 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.965E-01  
33 2.470E+00 8.449E+00 4.167E-04 2.023E+05 5.343E+01 6.994E-01 2.806E-01 7.704E+02 1.122E+10 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.949E-01  
32 2.481E+00 8.660E+00 2.969E-04 1.620E+05 5.343E+01 6.994E-01 2.806E-01 1.429E+02 6.386E+09 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.904E-01  
31 2.489E+00 8.836E+00 2.111E-04 1.306E+05 5.343E+01 6.994E-01 2.806E-01 2.327E+03 3.643E+09 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.774E-01  
30 2.493E+00 8.981E+00 1.492E-04 1.068E+05 5.343E+01 6.994E-01 2.806E-01 3.284E+03 2.089E+09 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.480E-01  
29 2.496E+00 9.103E+00 1.042E-04 8.890E+04 5.343E+01 6.994E-01 2.806E-01 4.165E+03 1.201E+09 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.143E-01  
28 2.498E+00 9.204E+00 7.266E-05 7.503E+04 5.343E+01 6.994E-01 2.806E-01 5.299E+03 6.971E+08 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.092E-01  
27 2.499E+00 9.285E+00 5.188E-05 6.348E+04 5.343E+01 6.994E-01 2.806E-01 7.406E+03 4.168E+08 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.405E-01  
26 2.499E+00 9.349E+00 3.845E-05 5.368E+04 5.343E+01 6.994E-01 2.806E-01 1.108E+04 2.596E+08 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.663E-01  
25 2.499E+00 9.401E+00 2.916E-05 4.568E+04 5.343E+01 6.994E-01 2.806E-01 1.597E+04 1.664E+08 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.583E-01  
24 2.500E+00 9.443E+00 2.209E-05 3.937E+04 5.343E+01 6.994E-01 2.806E-01 1.848E+04 1.076E+08 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 3.236E-01  
23 2.500E+00 9.481E+00 1.642E-05 3.445E+04 5.343E+01 6.994E-01 2.806E-01 1.702E+04 6.910E+07 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 2.777E-01  
22 2.500E+00 9.515E+00 1.191E-05 3.057E+04 5.343E+01 6.994E-01 2.806E-01 1.403E+04 4.371E+07 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 2.410E-01  
21 2.500E+00 9.546E+00 8.483E-06 2.742E+04 5.343E+01 6.994E-01 2.806E-01 1.098E+04 2.737E+07 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 2.197E-01  
20 2.500E+00 9.574E+00 5.983E-06 2.477E+04 5.343E+01 6.994E-01 2.806E-01 8.534E+03 1.707E+07 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 2.048E-01  
19 2.500E+00 9.598E+00 4.183E-06 2.252E+04 5.343E+01 6.994E-01 2.806E-01 6.610E+03 1.059E+07 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 1.871E-01  
18 2.500E+00 9.621E+00 2.884E-06 2.061E+04 5.343E+01 6.994E-01 2.806E-01 5.059E+03 6.508E+06 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 1.673E-01  
17 2.500E+00 9.642E+00 1.955E-06 1.899E+04 5.343E+01 6.994E-01 2.806E-01 3.792E+03 3.947E+06 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 1.495E-01  
16 2.500E+00 9.661E+00 1.305E-06 1.760E+04 5.343E+01 6.994E-01 2.806E-01 2.846E+03 2.365E+06 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 1.350E-01  
15 2.500E+00 9.678E+00 8.618E-07 1.637E+04 5.343E+01 6.994E-01 2.806E-01 2.035E+03 1.405E+06 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 1.236E-01  
14 2.500E+00 9.694E+00 5.658E-07 1.529E+04 5.343E+01 6.994E-01 2.806E-01 1.439E+03 8.298E+05 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 1.146E-01  
13 2.500E+00 9.709E+00 3.716E-07 1.430E+04 5.343E+01 6.994E-01 2.806E-01 1.003E+03 4.898E+05 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 1.074E-01  
12 2.500E+00 9.722E+00 2.461E-07 1.339E+04 5.343E+01 6.994E-01 2.806E-01 6.510E+02 2.905E+05 3.313E-03 1.282E-03 1.004E-02 1.840E-03 6.800E-04 1.018E-01  
11 2.500E+00 9.733E+00 1.659E-07

Output AGB : K m r rho T L H1 He4 kappa P C12 N14 O16 Ne20 Mg24 grada

199 5.076E-05 3.402E-03 1.814E+03 1.502E+08 6.430E+00 0.000E+00 9.806E-01 1.508E-01 1.827E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.357E-01  
198 1.477E-04 8.859E-03 1.812E+03 1.501E+08 1.843E+01 0.000E+00 9.806E-01 1.508E-01 1.825E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.357E-01  
197 2.792E-04 6.009E-03 1.811E+03 1.500E+08 3.454E+01 0.000E+00 9.806E-01 1.508E-01 1.822E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.358E-01  
196 4.423E-04 7.006E-03 1.809E+03 1.499E+08 5.420E+01 0.000E+00 9.806E-01 1.508E-01 1.819E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.358E-01  
195 6.362E-04 7.911E-03 1.807E+03 1.499E+08 7.717E+01 0.000E+00 9.806E-01 1.509E-01 1.816E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.358E-01  
194 8.608E-04 8.751E-03 1.805E+03 1.498E+08 1.033E+02 0.000E+00 9.806E-01 1.509E-01 1.813E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.358E-01  
193 1.117E-03 9.547E-03 1.803E+03 1.497E+08 1.325E+02 0.000E+00 9.806E-01 1.509E-01 1.810E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.359E-01  
192 1.405E-03 1.031E-02 1.801E+03 1.496E+08 1.647E+02 0.000E+00 9.806E-01 1.509E-01 1.806E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.359E-01  
191 1.726E-03 1.104E-02 1.799E+03 1.495E+08 1.999E+02 0.000E+00 9.806E-01 1.509E-01 1.803E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.359E-01  
190 2.082E-03 1.176E-02 1.796E+03 1.494E+08 2.381E+02 0.000E+00 9.806E-01 1.510E-01 1.799E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.359E-01  
189 2.475E-03 1.246E-02 1.794E+03 1.493E+08 2.792E+02 0.000E+00 9.806E-01 1.510E-01 1.796E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.360E-01  
188 2.905E-03 1.315E-02 1.791E+03 1.492E+08 3.233E+02 0.000E+00 9.806E-01 1.510E-01 1.792E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.360E-01  
187 3.375E-03 1.382E-02 1.789E+03 1.491E+08 3.703E+02 0.000E+00 9.806E-01 1.511E-01 1.788E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.360E-01  
186 3.887E-03 1.449E-02 1.786E+03 1.490E+08 4.201E+02 0.000E+00 9.806E-01 1.511E-01 1.784E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.361E-01  
185 4.443E-03 1.516E-02 1.784E+03 1.488E+08 4.729E+02 0.000E+00 9.806E-01 1.511E-01 1.779E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.361E-01  
184 5.046E-03 1.582E-02 1.781E+03 1.487E+08 5.286E+02 0.000E+00 9.806E-01 1.512E-01 1.775E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.361E-01  
183 5.697E-03 1.648E-02 1.778E+03 1.486E+08 5.871E+02 0.000E+00 9.806E-01 1.512E-01 1.770E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.362E-01  
182 6.400E-03 1.712E-02 1.775E+03 1.484E+08 6.484E+02 0.000E+00 9.806E-01 1.512E-01 1.765E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.362E-01  
181 7.157E-03 1.780E-02 1.772E+03 1.483E+08 7.124E+02 0.000E+00 9.806E-01 1.513E-01 1.761E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.363E-01  
180 7.972E-03 1.845E-02 1.768E+03 1.482E+08 7.792E+02 0.000E+00 9.806E-01 1.513E-01 1.755E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.363E-01  
179 8.848E-03 1.911E-02 1.765E+03 1.480E+08 8.486E+02 0.000E+00 9.806E-01 1.514E-01 1.750E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.363E-01  
178 9.788E-03 1.978E-02 1.761E+03 1.479E+08 9.206E+02 0.000E+00 9.806E-01 1.514E-01 1.745E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.364E-01  
177 1.080E-02 2.044E-02 1.758E+03 1.477E+08 9.951E+02 0.000E+00 9.806E-01 1.514E-01 1.739E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.364E-01  
176 1.187E-02 2.111E-02 1.754E+03 1.475E+08 1.072E+03 0.000E+00 9.806E-01 1.515E-01 1.733E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.365E-01  
175 1.303E-02 2.178E-02 1.750E+03 1.473E+08 1.151E+03 0.000E+00 9.806E-01 1.515E-01 1.727E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.365E-01  
174 1.426E-02 2.246E-02 1.746E+03 1.472E+08 1.232E+03 0.000E+00 9.806E-01 1.516E-01 1.721E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.366E-01  
173 1.558E-02 2.314E-02 1.742E+03 1.470E+08 1.316E+03 0.000E+00 9.806E-01 1.516E-01 1.714E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.367E-01  
172 1.699E-02 2.383E-02 1.737E+03 1.468E+08 1.401E+03 0.000E+00 9.806E-01 1.517E-01 1.707E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.367E-01  
171 1.849E-02 2.452E-02 1.733E+03 1.466E+08 1.488E+03 0.000E+00 9.806E-01 1.518E-01 1.700E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.368E-01  
170 2.009E-02 2.523E-02 1.728E+03 1.464E+08 1.576E+03 0.000E+00 9.806E-01 1.518E-01 1.693E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.368E-01  
169 2.179E-02 2.594E-02 1.723E+03 1.462E+08 1.666E+03 0.000E+00 9.806E-01 1.519E-01 1.686E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.369E-01  
168 2.361E-02 2.665E-02 1.718E+03 1.459E+08 1.757E+03 0.000E+00 9.806E-01 1.519E-01 1.678E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.370E-01  
167 2.544E-02 2.738E-02 1.713E+03 1.457E+08 1.849E+03 0.000E+00 9.806E-01 1.520E-01 1.670E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.370E-01  
166 2.739E-02 2.811E-02 1.708E+03 1.455E+08 1.942E+03 0.000E+00 9.806E-01 1.521E-01 1.662E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.371E-01  
165 2.978E-02 2.885E-02 1.702E+03 1.452E+08 2.035E+03 0.000E+00 9.806E-01 1.521E-01 1.653E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.372E-01  
164 3.210E-02 2.960E-02 1.696E+03 1.449E+08 2.128E+03 0.000E+00 9.806E-01 1.522E-01 1.645E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.373E-01  
163 3.456E-02 3.036E-02 1.690E+03 1.447E+08 2.222E+03 0.000E+00 9.806E-01 1.523E-01 1.635E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.373E-01  
162 3.718E-02 3.113E-02 1.684E+03 1.444E+08 2.315E+03 0.000E+00 9.806E-01 1.524E-01 1.626E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.374E-01  
161 3.996E-02 3.191E-02 1.678E+03 1.441E+08 2.407E+03 0.000E+00 9.806E-01 1.525E-01 1.616E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.375E-01  
160 4.290E-02 3.270E-02 1.671E+03 1.438E+08 2.498E+03 0.000E+00 9.806E-01 1.525E-01 1.606E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.376E-01  
159 4.603E-02 3.351E-02 1.664E+03 1.435E+08 2.588E+03 0.000E+00 9.806E-01 1.526E-01 1.596E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.377E-01  
158 4.934E-02 3.432E-02 1.657E+03 1.432E+08 2.676E+03 0.000E+00 9.806E-01 1.527E-01 1.585E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.378E-01  
157 5.285E-02 3.515E-02 1.650E+03 1.428E+08 2.762E+03 0.000E+00 9.806E-01 1.528E-01 1.574E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.379E-01  
156 5.656E-02 3.598E-02 1.642E+03 1.425E+08 2.846E+03 0.000E+00 9.806E-01 1.529E-01 1.563E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.380E-01  
155 6.050E-02 3.683E-02 1.634E+03 1.421E+08 2.927E+03 0.000E+00 9.806E-01 1.530E-01 1.551E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.381E-01  
154 6.466E-02 3.770E-02 1.626E+03 1.417E+08 3.006E+03 0.000E+00 9.806E-01 1.531E-01 1.539E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.382E-01  
153 6.906E-02 3.857E-02 1.618E+03 1.413E+08 3.083E+03 0.000E+00 9.806E-01 1.532E-01 1.527E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.384E-01  
152 7.372E-02 3.946E-02 1.609E+03 1.409E+08 3.156E+03 0.000E+00 9.806E-01 1.534E-01 1.514E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.385E-01  
151 7.865E-02 4.037E-02 1.600E+03 1.405E+08 3.226E+03 0.000E+00 9.806E-01 1.535E-01 1.501E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.386E-01  
150 8.386E-02 4.129E-02 1.591E+03 1.401E+08 3.293E+03 0.000E+00 9.806E-01 1.537E-01 1.487E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.387E-01  
149 8.936E-02 4.222E-02 1.581E+03 1.396E+08 3.356E+03 0.000E+00 9.806E-01 1.538E-01 1.473E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.389E-01  
148 9.517E-02 4.317E-02 1.572E+03 1.392E+08 3.416E+03 0.000E+00 9.806E-01 1.540E-01 1.458E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.390E-01  
147 1.013E-01 4.414E-02 1.561E+03 1.387E+08 3.472E+03 0.000E+00 9.806E-01 1.541E-01 1.444E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.392E-01  
146 1.078E-01 4.512E-02 1.551E+03 1.382E+08 3.524E+03 0.000E+00 9.806E-01 1.543E-01 1.428E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.393E-01  
145 1.146E-01 4.612E-02 1.540E+03 1.377E+08 3.573E+03 0.000E+00 9.806E-01 1.545E-01 1.413E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.395E-01  
144 1.218E-01 4.713E-02 1.529E+03 1.371E+08 3.618E+03 0.000E+00 9.806E-01 1.547E-01 1.396E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.397E-01  
143 1.294E-01 4.816E-02 1.517E+03 1.366E+08 3.659E+03 0.000E+00 9.806E-01 1.548E-01 1.380E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.398E-01  
142 1.374E-01 4.921E-02 1.505E+03 1.360E+08 3.696E+03 0.000E+00 9.806E-01 1.550E-01 1.363E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.400E-01  
141 1.459E-01 5.028E-02 1.493E+03 1.354E+08 3.730E+03 0.000E+00 9.806E-01 1.552E-01 1.345E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.402E-01  
140 1.548E-01 5.137E-02 1.480E+03 1.348E+08 3.760E+03 0.000E+00 9.806E-01 1.555E-01 1.327E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.404E-01  
139 1.641E-01 5.247E-02 1.467E+03 1.342E+08 3.787E+03 0.000E+00 9.806E-01 1.557E-01 1.309E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.406E-01  
138 1.740E-01 5.360E-02 1.454E+03 1.335E+08 3.811E+03 0.000E+00 9.806E-01 1.559E-01 1.290E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.408E-01  
137 1.843E-01 5.474E-02 1.440E+03 1.328E+08 3.832E+03 0.000E+00 9.806E-01 1.561E-01 1.271E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.411E-01  
136 1.952E-01 5.591E-02 1.426E+03 1.321E+08 3.850E+03 0.000E+00 9.806E-01 1.564E-01 1.251E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.413E-01  
135 2.067E-01 5.710E-02 1.411E+03 1.314E+08 3.866E+03 0.000E+00 9.806E-01 1.567E-01 1.231E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.415E-01  
134 2.187E-01 5.831E-02 1.396E+03 1.306E+08 3.879E+03 0.000E+00 9.806E-01 1.569E-01 1.210E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.418E-01  
133 2.313E-01 5.954E-02 1.381E+03 1.298E+08 3.891E+03 0.000E+00 9.806E-01 1.572E-01 1.189E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.420E-01  
132 2.446E-01 6.079E-02 1.365E+03 1.290E+08 3.900E+03 0.000E+00 9.806E-01 1.575E-01 1.168E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.423E-01  
131 2.585E-01 6.207E-02 1.348E+03 1.282E+08 3.908E+03 0.000E+00 9.806E-01 1.578E-01 1.146E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.426E-01  
130 2.731E-01 6.337E-02 1.332E+03 1.273E+08 3.915E+03 0.000E+00 9.806E-01 1.581E-01 1.123E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.429E-01  
129 2.884E-01 6.469E-02 1.314E+03 1.264E+08 3.920E+03 0.000E+00 9.806E-01 1.584E-01 1.100E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.432E-01  
128 3.045E-01 6.604E-02 1.297E+03 1.255E+08 3.924E+03 0.000E+00 9.806E-01 1.588E-01 1.077E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.435E-01  
127 3.212E-01 6.741E-02 1.279E+03 1.245E+08 3.927E+03 0.000E+00 9.806E-01 1.592E-01 1.053E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.438E-01  
126 3.388E-01 6.881E-02 1.260E+03 1.235E+08 3.930E+03 0.000E+00 9.806E-01 1.595E-01 1.029E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.442E-01  
125 3.572E-01 7.024E-02 1.241E+03 1.225E+08 3.932E+03 0.000E+00 9.806E-01 1.599E-01 1.005E+19 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.445E-01  
124 3.764E-01 7.170E-02 1.222E+03 1.215E+08 3.933E+03 0.000E+00 9.806E-01 1.604E-01 9.798E+18 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.449E-01  
123 3.964E-01 7.318E-02 1.202E+03 1.204E+08 3.934E+03 0.000E+00 9.806E-01 1.608E-01 9.546E+18 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.453E-01  
122 4.174E-01 7.469E-02 1.181E+03 1.193E+08 3.935E+03 0.000E+00 9.806E-01 1.612E-01 9.290E+18 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.457E-01  
121 4.392E-01 7.623E-02 1.160E+03 1.181E+08 3.936E+03 0.000E+00 9.806E-01 1.617E-01 9.032E+18 1.602E-04 1.303E-02 8.170E-04 1.840E-03 6.800E-04 3.461E-01  
120 4.620E-01 7.779E-02 1.139E+03 1.169E+0

91 1.523E+00 1.393E-01 3.836E+02 6.932E+07 3.937E+03 0.000E+00 9.806E-01 1.896E-01 1.712E+18 2.002E-04 1.318E-02 5.955E-04 1.840E-03 6.800E-04 3.625E-01  
90 1.567E+00 1.421E-01 3.582E+02 6.752E+07 3.937E+03 0.000E+00 9.806E-01 1.909E-01 1.556E+18 2.016E-04 1.319E-02 5.891E-04 1.840E-03 6.800E-04 3.628E-01  
89 1.611E+00 1.450E-01 3.335E+02 6.573E+07 3.937E+03 0.000E+00 9.806E-01 1.921E-01 1.410E+18 2.029E-04 1.319E-02 5.829E-04 1.840E-03 6.800E-04 3.631E-01  
88 1.654E+00 1.479E-01 3.096E+02 6.394E+07 3.937E+03 0.000E+00 9.806E-01 1.933E-01 1.273E+18 2.042E-04 1.320E-02 5.768E-04 1.840E-03 6.800E-04 3.634E-01  
87 1.697E+00 1.509E-01 2.866E+02 6.217E+07 3.937E+03 0.000E+00 9.806E-01 1.949E-01 1.145E+18 2.053E-04 1.320E-02 5.707E-04 1.840E-03 6.800E-04 3.637E-01  
86 1.738E+00 1.540E-01 2.646E+02 6.041E+07 3.937E+03 0.000E+00 9.806E-01 1.965E-01 1.027E+18 2.065E-04 1.321E-02 5.642E-04 1.840E-03 6.800E-04 3.639E-01  
85 1.779E+00 1.571E-01 2.435E+02 5.866E+07 3.937E+03 0.000E+00 9.806E-01 1.980E-01 9.174E+17 2.079E-04 1.322E-02 5.573E-04 1.840E-03 6.800E-04 3.642E-01  
84 1.818E+00 1.602E-01 2.234E+02 5.692E+07 3.937E+03 0.000E+00 9.806E-01 1.992E-01 8.166E+17 2.096E-04 1.324E-02 5.499E-04 1.840E-03 6.800E-04 3.643E-01  
83 1.857E+00 1.635E-01 2.044E+02 5.521E+07 3.937E+03 0.000E+00 9.806E-01 2.007E-01 7.244E+17 2.111E-04 1.327E-02 5.425E-04 1.840E-03 6.800E-04 3.645E-01  
82 1.894E+00 1.667E-01 1.864E+02 5.352E+07 3.937E+03 0.000E+00 9.805E-01 2.023E-01 6.403E+17 2.114E-04 1.331E-02 5.363E-04 1.840E-03 6.800E-04 3.646E-01  
81 1.930E+00 1.701E-01 1.695E+02 5.186E+07 3.937E+03 0.000E+00 9.805E-01 2.039E-01 5.639E+17 2.096E-04 1.332E-02 5.331E-04 1.840E-03 6.800E-04 3.647E-01  
80 1.964E+00 1.735E-01 1.536E+02 5.022E+07 3.937E+03 0.000E+00 9.806E-01 2.055E-01 4.950E+17 2.063E-04 1.331E-02 5.269E-04 1.840E-03 6.800E-04 3.647E-01  
79 1.997E+00 1.769E-01 1.388E+02 4.860E+07 3.937E+03 0.000E+00 9.806E-01 2.077E-01 4.329E+17 2.036E-04 1.329E-02 5.082E-04 1.840E-03 6.800E-04 3.647E-01  
78 2.020E+00 1.804E-01 1.251E+02 4.702E+07 3.937E+03 0.000E+00 9.806E-01 2.096E-01 3.773E+17 2.023E-04 1.329E-02 4.902E-04 1.840E-03 6.800E-04 3.647E-01  
77 2.059E+00 1.840E-01 1.124E+02 4.547E+07 3.937E+03 0.000E+00 9.806E-01 2.112E-01 3.278E+17 2.017E-04 1.328E-02 4.865E-04 1.840E-03 6.800E-04 3.646E-01  
76 2.087E+00 1.876E-01 1.006E+02 4.395E+07 3.937E+03 0.000E+00 9.806E-01 2.129E-01 2.838E+17 2.008E-04 1.328E-02 4.933E-04 1.840E-03 6.800E-04 3.644E-01  
75 2.113E+00 1.913E-01 9.885E+01 4.248E+07 3.937E+03 0.000E+00 9.806E-01 2.154E-01 2.450E+17 1.995E-04 1.326E-02 5.028E-04 1.840E-03 6.800E-04 3.642E-01  
74 2.138E+00 1.950E-01 7.999E+01 4.104E+07 3.937E+03 0.000E+00 9.806E-01 2.175E-01 2.108E+17 1.977E-04 1.326E-02 5.127E-04 1.840E-03 6.800E-04 3.640E-01  
73 2.162E+00 1.987E-01 7.100E+01 3.965E+07 3.937E+03 0.000E+00 9.806E-01 2.193E-01 1.808E+17 1.954E-04 1.325E-02 5.235E-04 1.840E-03 6.800E-04 3.636E-01  
72 2.183E+00 2.025E-01 6.283E+01 3.830E+07 3.937E+03 0.000E+00 9.806E-01 2.217E-01 1.546E+17 1.926E-04 1.324E-02 5.357E-04 1.840E-03 6.800E-04 3.632E-01  
71 2.204E+00 2.064E-01 5.543E+01 3.700E+07 3.937E+03 0.000E+00 9.806E-01 2.235E-01 1.319E+17 1.894E-04 1.323E-02 5.493E-04 1.840E-03 6.800E-04 3.627E-01  
70 2.225E+00 2.103E-01 4.876E+01 3.575E+07 3.937E+03 0.000E+00 9.806E-01 2.254E-01 1.122E+17 1.860E-04 1.322E-02 5.635E-04 1.840E-03 6.800E-04 3.621E-01  
69 2.240E+00 2.142E-01 4.276E+01 3.456E+07 3.937E+03 0.000E+00 9.806E-01 2.280E-01 9.519E+16 1.823E-04 1.322E-02 5.786E-04 1.840E-03 6.800E-04 3.613E-01  
68 2.256E+00 2.182E-01 3.738E+01 3.342E+07 3.937E+03 0.000E+00 9.806E-01 2.302E-01 8.056E+16 1.786E-04 1.321E-02 5.945E-04 1.840E-03 6.800E-04 3.604E-01  
67 2.270E+00 2.222E-01 3.256E+01 3.233E+07 3.937E+03 0.000E+00 9.806E-01 2.314E-01 6.802E+16 1.736E-04 1.319E-02 6.111E-04 1.840E-03 6.800E-04 3.594E-01  
66 2.283E+00 2.263E-01 2.823E+01 3.131E+07 3.938E+03 9.216E+04 9.797E-01 2.332E-01 5.729E+16 1.661E-04 1.319E-02 6.296E-04 1.840E-03 6.800E-04 3.581E-01  
65 2.296E+00 2.305E-01 2.381E+01 3.035E+07 3.947E+03 1.648E+02 9.641E-01 2.384E-01 4.816E+16 1.584E-04 1.316E-02 6.698E-04 1.840E-03 6.800E-04 3.566E-01  
64 2.307E+00 2.352E-01 1.758E+01 2.940E+07 3.979E+03 1.211E-01 8.595E-01 2.572E-01 4.043E+16 1.492E-04 1.301E-02 8.518E-04 1.840E-03 6.800E-04 3.552E-01  
63 2.317E+00 2.411E-01 1.158E+01 2.842E+07 4.026E+03 3.480E-01 6.325E-01 2.988E-01 3.395E+16 1.343E-04 1.236E-02 1.620E-03 1.840E-03 6.800E-04 3.541E-01  
62 2.326E+00 2.485E-01 8.490E+00 2.737E+07 4.060E+03 5.268E-01 4.534E-01 3.332E-01 2.854E+16 1.099E-04 1.072E-02 3.523E-03 1.840E-03 6.800E-04 3.535E-01  
61 2.335E+00 2.570E-01 6.907E+00 2.630E+07 4.076E+03 6.112E-01 3.688E-01 3.520E-01 2.400E+16 8.340E-05 8.659E-03 5.915E-03 1.840E-03 6.800E-04 3.531E-01  
60 2.343E+00 2.662E-01 5.887E+00 2.524E+07 4.082E+03 6.439E-01 3.358E-01 3.608E-01 2.017E+16 6.445E-05 7.148E-03 7.667E-03 1.840E-03 6.800E-04 3.528E-01  
59 2.352E+00 2.759E-01 5.100E+00 2.420E+07 4.084E+03 6.564E-01 3.232E-01 3.677E-01 1.693E+16 5.348E-05 6.345E-03 8.599E-03 1.840E-03 6.800E-04 3.526E-01  
58 2.360E+00 2.860E-01 4.442E+00 2.319E+07 4.085E+03 6.615E-01 3.181E-01 3.729E-01 1.419E+16 4.695E-05 5.985E-03 9.020E-03 1.840E-03 6.800E-04 3.524E-01  
57 2.368E+00 2.965E-01 3.873E+00 2.221E+07 4.085E+03 6.636E-01 3.160E-01 3.768E-01 1.187E+16 4.254E-05 5.838E-03 9.193E-03 1.840E-03 6.800E-04 3.523E-01  
56 2.375E+00 3.074E-01 3.375E+00 2.126E+07 4.085E+03 6.645E-01 3.151E-01 3.810E-01 9.912E+15 3.908E-05 5.782E-03 9.262E-03 1.840E-03 6.800E-04 3.521E-01  
55 2.383E+00 3.188E-01 2.937E+00 2.033E+07 4.085E+03 6.648E-01 3.147E-01 3.850E-01 8.255E+15 3.685E-05 5.762E-03 9.288E-03 1.840E-03 6.800E-04 3.520E-01  
54 2.390E+00 3.306E-01 2.551E+00 1.943E+07 4.085E+03 6.650E-01 3.145E-01 3.891E-01 6.855E+15 5.510E-05 5.732E-03 9.297E-03 1.840E-03 6.800E-04 3.519E-01  
53 2.397E+00 3.429E-01 2.210E+00 1.855E+07 4.085E+03 6.651E-01 3.144E-01 3.927E-01 5.673E+15 2.358E-04 5.518E-03 9.301E-03 1.840E-03 6.800E-04 3.517E-01  
52 2.404E+00 3.559E-01 1.910E+00 1.769E+07 4.085E+03 6.653E-01 3.144E-01 3.954E-01 4.675E+15 8.009E-04 4.858E-03 9.302E-03 1.840E-03 6.800E-04 3.516E-01  
51 2.411E+00 3.694E-01 1.644E+00 1.685E+07 4.085E+03 6.654E-01 3.144E-01 3.986E-01 3.835E+15 1.489E-03 4.055E-03 9.302E-03 1.840E-03 6.800E-04 3.515E-01  
50 2.417E+00 3.837E-01 1.409E+00 1.603E+07 4.085E+03 6.655E-01 3.143E-01 4.016E-01 3.127E+15 1.929E-03 3.542E-03 9.302E-03 1.840E-03 6.800E-04 3.514E-01  
49 2.424E+00 3.989E-01 1.201E+00 1.521E+07 4.085E+03 6.655E-01 3.143E-01 4.035E-01 2.532E+15 2.127E-03 3.310E-03 9.302E-03 1.840E-03 6.800E-04 3.513E-01  
48 2.430E+00 4.150E-01 1.018E+00 1.442E+07 4.085E+03 6.655E-01 3.143E-01 4.043E-01 2.032E+15 2.202E-03 3.223E-03 9.302E-03 1.840E-03 6.800E-04 3.512E-01  
47 2.436E+00 4.324E-01 8.548E-01 1.363E+07 4.085E+03 6.656E-01 3.143E-01 4.065E-01 1.614E+15 2.227E-03 3.194E-03 9.302E-03 1.840E-03 6.800E-04 3.511E-01  
46 2.442E+00 4.511E-01 7.108E-01 1.284E+07 4.085E+03 6.656E-01 3.143E-01 4.075E-01 1.265E+15 2.235E-03 3.185E-03 9.302E-03 1.840E-03 6.800E-04 3.509E-01  
45 2.448E+00 4.716E-01 5.835E-01 1.206E+07 4.085E+03 6.656E-01 3.143E-01 4.083E-01 9.761E+14 2.237E-03 3.182E-03 9.302E-03 1.840E-03 6.800E-04 3.506E-01  
44 2.454E+00 4.942E-01 4.713E-01 1.128E+07 4.085E+03 6.656E-01 3.143E-01 4.093E-01 7.379E+14 2.237E-03 3.182E-03 9.302E-03 1.840E-03 6.800E-04 3.501E-01  
43 2.460E+00 5.194E-01 3.732E-01 1.050E+07 4.085E+03 6.656E-01 3.143E-01 4.133E-01 5.441E+14 2.237E-03 3.182E-03 9.302E-03 1.840E-03 6.800E-04 3.496E-01  
42 2.466E+00 5.479E-01 2.883E-01 9.703E+06 4.085E+03 6.656E-01 3.143E-01 4.175E-01 3.891E+14 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.488E-01  
41 2.471E+00 5.805E-01 2.163E-01 8.904E+06 4.085E+03 6.656E-01 3.143E-01 4.239E-01 2.683E+14 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.478E-01  
40 2.476E+00 6.177E-01 1.568E-01 8.102E+06 4.085E+03 6.656E-01 3.143E-01 4.364E-01 1.774E+14 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.464E-01  
39 2.481E+00 6.603E-01 1.096E-01 7.304E+06 4.085E+03 6.656E-01 3.143E-01 4.529E-01 1.121E+14 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.448E-01  
38 2.485E+00 7.083E-01 7.392E-02 6.526E+06 4.085E+03 6.656E-01 3.143E-01 4.756E-01 6.780E+13 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.428E-01  
37 2.489E+00 7.616E-01 4.828E-02 5.783E+06 4.085E+03 6.656E-01 3.143E-01 5.017E-01 3.942E+13 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.404E-01  
36 2.492E+00 8.195E-01 3.069E-02 5.095E+06 4.085E+03 6.656E-01 3.143E-01 5.316E-01 2.219E+13 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.377E-01  
35 2.494E+00 8.813E-01 1.909E-02 4.469E+06 4.085E+03 6.656E-01 3.143E-01 5.689E-01 1.219E+13 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.345E-01  
34 2.496E+00 9.461E-01 1.170E-02 3.905E+06 4.085E+03 6.656E-01 3.143E-01 6.191E-01 6.575E+12 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.312E-01  
33 2.497E+00 1.013E+00 7.095E-03 3.397E+06 4.085E+03 6.656E-01 3.143E-01 6.755E-01 3.496E+12 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.279E-01  
32 2.498E+00 1.081E+00 4.280E-03 2.939E+06 4.085E+03 6.656E-01 3.143E-01 7.402E-01 1.838E+12 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.251E-01  
31 2.499E+00 1.149E+00 2.585E-03 2.521E+06 4.085E+03 6.656E-01 3.143E-01 8.130E-01 9.562E+11 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.233E-01  
30 2.499E+00 1.215E+00 1.569E-03 2.139E+06 4.085E+03 6.656E-01 3.143E-01 8.579E-01 4.929E+11 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.230E-01  
29 2.500E+00 1.279E+00 9.505E-04 1.805E+06 4.085E+03 6.656E-01 3.143E-01 8.527E-01 2.517E+11 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.234E-01  
28 2.500E+00 1.338E+00 5.700E-04 1.524E+06 4.085E+03 6.656E-01 3.143E-01 8.306E-01 1.275E+11 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.233E-01  
27 2.500E+00 1.394E+00 3.377E-04 1.289E+06 4.085E+03 6.656E-01 3.143E-01 8.268E-01 6.407E+10 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.223E-01  
26 2.500E+00 1.445E+00 1.981E-04 1.094E+06 4.085E+03 6.656E-01 3.143E-01 8.390E-01 3.202E+10 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.207E-01  
25 2.500E+00 1.492E+00 1.151E-04 9.304E+05 4.085E+03 6.656E-01 3.143E-01 8.650E-01 1.594E+10 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.184E-01  
24 2.500E+00 1.536E+00 6.625E-05 7.943E+05 4.085E+03 6.656E-01 3.143E-01 8.922E-01 7.904E+09 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.152E-01  
23 2.500E+00 1.576E+00 3.763E-05 6.821E+05 4.085E+03 6.656E-01 3.143E-01 9.384E-01 3.912E+09 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.108E-01  
22 2.500E+00 1.612E+00 2.107E-05 5.895E+05 4.085E+03 6.656E-01 3.143E-01 1.013E+00 1.933E+09 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.051E-01  
21 2.500E+00 1.646E+00 1.165E-05 5.121E+05 4.085E+03 6.656E-01 3.143E-01 1.138E+00 9.558E+08 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.986E-01  
20 2.500E+00 1.678E+00 6.399E-06 4.457E+05 4.085E+03 6.656E-01 3.143E-01 1.318E+00 4.734E+08 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.919E-01  
19 2.500E+00 1.708E+00 3.513E-06 3.876E+05 4.085E+03 6.656E-01 3.143E-01 1.547E+00 2.355E+08 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.857E-01  
18 2.500E+00 1.735E+00 1.931E-06 3.369E+05 4.085E+03 6.656E-01 3.143E-01 1.778E+00 1.178E+08 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.802E-01  
17 2.500E+00 1.761E+00 1.057E-06 2.932E+05 4.085E+03 6.656E-01 3.143E-01 2.012E+00 5.929E+07 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.750E-01  
16 2.500E+00 1.785E+00 5.788E-07 2.552E+05 4.085E+03 6.656E-01 3.143E-01 2.334E+00 3.008E+07 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.704E-01  
15 2.500E+00 1.807E+00 3.342E-07 2.198E+05 4.085E+03 6.656E-01 3.143E-01 2.932E+00 1.552E+07 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.681E-01  
14 2.500E+00 1.826E+00 2.201E-07 1.847E+05 4.085E+03 6.656E-01 3.143E-01 3.456E+00 8.271E+06 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.704E-01  
13 2.500E+00 1.840E+00 1.565E-07 1.535E+05 4.085E+03 6.656E-01 3.143E-01 3.064E+00 4.548E+06 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.758E-01  
12 2.500E+00 1.851E+00 1.085E-07 1.290E+05 4.085E+03 6.656E-01 3.143E-01 2.466E+00 2.535E+06 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.802E-01  
11 2.500E+00 1.860E+00 7.235E-08



Output PN : K m r rho T L H1 He4 kappa P C12 N14 O16 Ne20 Mg24 grada

199 4.835E-04 3.407E-03 1.720E+03 1.509E+08 6.592E+00 0.000E+00 9.806E-01 1.504E-01 1.749E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.333E-01  
198 1.406E-04 4.864E-03 1.719E+03 1.508E+08 1.889E+01 0.000E+00 9.806E-01 1.505E-01 1.747E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.333E-01  
197 2.655E-04 6.014E-03 1.717E+03 1.507E+08 3.539E+01 0.000E+00 9.806E-01 1.505E-01 1.744E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.334E-01  
196 4.203E-04 7.011E-03 1.716E+03 1.507E+08 5.554E+01 0.000E+00 9.806E-01 1.505E-01 1.742E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.334E-01  
195 6.040E-04 7.913E-03 1.714E+03 1.506E+08 7.907E+01 0.000E+00 9.806E-01 1.505E-01 1.739E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.334E-01  
194 8.167E-04 8.752E-03 1.712E+03 1.505E+08 1.058E+02 0.000E+00 9.806E-01 1.505E-01 1.736E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.334E-01  
193 1.059E-03 9.545E-03 1.710E+03 1.504E+08 1.358E+02 0.000E+00 9.806E-01 1.506E-01 1.733E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.335E-01  
192 1.331E-03 1.030E-02 1.708E+03 1.503E+08 1.688E+02 0.000E+00 9.806E-01 1.506E-01 1.730E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.335E-01  
191 1.634E-03 1.103E-02 1.706E+03 1.503E+08 2.048E+02 0.000E+00 9.806E-01 1.506E-01 1.727E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.335E-01  
190 1.969E-03 1.175E-02 1.704E+03 1.502E+08 2.440E+02 0.000E+00 9.806E-01 1.506E-01 1.724E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.335E-01  
189 2.338E-03 1.244E-02 1.702E+03 1.501E+08 2.861E+02 0.000E+00 9.806E-01 1.507E-01 1.721E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.336E-01  
188 2.742E-03 1.312E-02 1.700E+03 1.500E+08 3.313E+02 0.000E+00 9.806E-01 1.507E-01 1.717E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.336E-01  
187 3.183E-03 1.380E-02 1.698E+03 1.499E+08 3.795E+02 0.000E+00 9.806E-01 1.507E-01 1.714E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.336E-01  
186 3.663E-03 1.446E-02 1.696E+03 1.498E+08 4.307E+02 0.000E+00 9.806E-01 1.507E-01 1.710E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.337E-01  
185 4.183E-03 1.512E-02 1.693E+03 1.496E+08 4.849E+02 0.000E+00 9.806E-01 1.508E-01 1.706E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.337E-01  
184 4.746E-03 1.577E-02 1.691E+03 1.495E+08 5.421E+02 0.000E+00 9.806E-01 1.508E-01 1.702E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.337E-01  
183 5.353E-03 1.643E-02 1.688E+03 1.494E+08 6.023E+02 0.000E+00 9.806E-01 1.508E-01 1.698E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.338E-01  
182 6.008E-03 1.708E-02 1.685E+03 1.493E+08 6.654E+02 0.000E+00 9.806E-01 1.509E-01 1.694E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.338E-01  
181 6.713E-03 1.772E-02 1.683E+03 1.492E+08 7.315E+02 0.000E+00 9.806E-01 1.509E-01 1.690E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.338E-01  
180 7.471E-03 1.837E-02 1.680E+03 1.490E+08 8.004E+02 0.000E+00 9.806E-01 1.509E-01 1.685E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.339E-01  
179 8.284E-03 1.902E-02 1.677E+03 1.489E+08 8.722E+02 0.000E+00 9.806E-01 1.510E-01 1.680E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.339E-01  
178 9.155E-03 1.968E-02 1.674E+03 1.487E+08 9.467E+02 0.000E+00 9.806E-01 1.510E-01 1.676E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.339E-01  
177 1.009E-02 2.033E-02 1.671E+03 1.486E+08 1.024E+03 0.000E+00 9.806E-01 1.511E-01 1.671E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.340E-01  
176 1.09E-02 2.099E-02 1.667E+03 1.484E+08 1.104E+03 0.000E+00 9.806E-01 1.511E-01 1.665E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.340E-01  
175 1.215E-02 2.165E-02 1.664E+03 1.483E+08 1.186E+03 0.000E+00 9.806E-01 1.511E-01 1.660E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.341E-01  
174 1.329E-02 2.231E-02 1.660E+03 1.481E+08 1.271E+03 0.000E+00 9.806E-01 1.512E-01 1.654E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.341E-01  
173 1.450E-02 2.298E-02 1.657E+03 1.479E+08 1.358E+03 0.000E+00 9.806E-01 1.512E-01 1.649E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.342E-01  
172 1.580E-02 2.366E-02 1.653E+03 1.478E+08 1.448E+03 0.000E+00 9.806E-01 1.513E-01 1.643E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.342E-01  
171 1.718E-02 2.434E-02 1.649E+03 1.476E+08 1.539E+03 0.000E+00 9.806E-01 1.513E-01 1.637E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.343E-01  
170 1.864E-02 2.503E-02 1.645E+03 1.474E+08 1.632E+03 0.000E+00 9.806E-01 1.514E-01 1.630E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.343E-01  
169 2.021E-02 2.572E-02 1.641E+03 1.472E+08 1.727E+03 0.000E+00 9.806E-01 1.514E-01 1.624E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.344E-01  
168 2.187E-02 2.642E-02 1.636E+03 1.470E+08 1.824E+03 0.000E+00 9.806E-01 1.515E-01 1.617E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.345E-01  
167 2.363E-02 2.713E-02 1.632E+03 1.468E+08 1.922E+03 0.000E+00 9.806E-01 1.516E-01 1.610E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.345E-01  
166 2.551E-02 2.784E-02 1.627E+03 1.465E+08 2.021E+03 0.000E+00 9.806E-01 1.516E-01 1.603E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.346E-01  
165 2.750E-02 2.857E-02 1.622E+03 1.463E+08 2.121E+03 0.000E+00 9.806E-01 1.517E-01 1.595E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.347E-01  
164 2.961E-02 2.930E-02 1.617E+03 1.461E+08 2.221E+03 0.000E+00 9.806E-01 1.518E-01 1.588E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.347E-01  
163 3.185E-02 3.004E-02 1.612E+03 1.458E+08 2.323E+03 0.000E+00 9.806E-01 1.518E-01 1.580E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.348E-01  
162 3.423E-02 3.079E-02 1.607E+03 1.456E+08 2.424E+03 0.000E+00 9.806E-01 1.519E-01 1.571E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.349E-01  
161 3.675E-02 3.155E-02 1.601E+03 1.453E+08 2.525E+03 0.000E+00 9.806E-01 1.520E-01 1.563E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.350E-01  
160 3.942E-02 3.232E-02 1.595E+03 1.450E+08 2.626E+03 0.000E+00 9.806E-01 1.520E-01 1.554E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.350E-01  
159 4.225E-02 3.310E-02 1.589E+03 1.448E+08 2.726E+03 0.000E+00 9.806E-01 1.521E-01 1.545E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.351E-01  
158 4.524E-02 3.389E-02 1.583E+03 1.445E+08 2.826E+03 0.000E+00 9.806E-01 1.522E-01 1.536E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.352E-01  
157 4.841E-02 3.469E-02 1.577E+03 1.442E+08 2.924E+03 0.000E+00 9.806E-01 1.523E-01 1.526E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.353E-01  
156 5.176E-02 3.550E-02 1.570E+03 1.439E+08 3.020E+03 0.000E+00 9.806E-01 1.524E-01 1.516E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.354E-01  
155 5.531E-02 3.632E-02 1.564E+03 1.435E+08 3.114E+03 0.000E+00 9.806E-01 1.525E-01 1.506E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.355E-01  
154 5.905E-02 3.716E-02 1.557E+03 1.432E+08 3.207E+03 0.000E+00 9.806E-01 1.526E-01 1.496E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.356E-01  
153 6.302E-02 3.801E-02 1.550E+03 1.428E+08 3.296E+03 0.000E+00 9.806E-01 1.527E-01 1.485E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.357E-01  
152 6.720E-02 3.887E-02 1.542E+03 1.425E+08 3.383E+03 0.000E+00 9.806E-01 1.528E-01 1.474E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.358E-01  
151 7.162E-02 3.974E-02 1.534E+03 1.421E+08 3.467E+03 0.000E+00 9.806E-01 1.529E-01 1.462E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.359E-01  
150 7.629E-02 4.063E-02 1.526E+03 1.417E+08 3.548E+03 0.000E+00 9.806E-01 1.530E-01 1.450E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.361E-01  
149 8.122E-02 4.153E-02 1.518E+03 1.413E+08 3.625E+03 0.000E+00 9.806E-01 1.531E-01 1.438E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.362E-01  
148 8.641E-02 4.244E-02 1.510E+03 1.409E+08 3.699E+03 0.000E+00 9.806E-01 1.532E-01 1.425E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.363E-01  
147 9.190E-02 4.337E-02 1.501E+03 1.405E+08 3.770E+03 0.000E+00 9.806E-01 1.534E-01 1.413E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.364E-01  
146 9.768E-02 4.432E-02 1.492E+03 1.400E+08 3.837E+03 0.000E+00 9.806E-01 1.535E-01 1.399E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.366E-01  
145 1.038E-01 4.527E-02 1.483E+03 1.396E+08 3.899E+03 0.000E+00 9.806E-01 1.537E-01 1.386E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.367E-01  
144 1.102E-01 4.625E-02 1.473E+03 1.391E+08 3.959E+03 0.000E+00 9.806E-01 1.538E-01 1.372E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.369E-01  
143 1.170E-01 4.724E-02 1.463E+03 1.386E+08 4.014E+03 0.000E+00 9.806E-01 1.540E-01 1.357E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.370E-01  
142 1.241E-01 4.825E-02 1.453E+03 1.381E+08 4.065E+03 0.000E+00 9.806E-01 1.542E-01 1.342E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.372E-01  
141 1.316E-01 4.927E-02 1.443E+03 1.375E+08 4.112E+03 0.000E+00 9.806E-01 1.544E-01 1.327E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.374E-01  
140 1.395E-01 5.031E-02 1.432E+03 1.370E+08 4.156E+03 0.000E+00 9.806E-01 1.545E-01 1.312E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.375E-01  
139 1.478E-01 5.137E-02 1.421E+03 1.364E+08 4.195E+03 0.000E+00 9.806E-01 1.547E-01 1.296E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.377E-01  
138 1.566E-01 5.245E-02 1.409E+03 1.358E+08 4.231E+03 0.000E+00 9.806E-01 1.549E-01 1.279E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.379E-01  
137 1.657E-01 5.354E-02 1.397E+03 1.352E+08 4.263E+03 0.000E+00 9.806E-01 1.551E-01 1.262E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.381E-01  
136 1.754E-01 5.465E-02 1.385E+03 1.346E+08 4.291E+03 0.000E+00 9.806E-01 1.553E-01 1.245E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.383E-01  
135 1.856E-01 5.579E-02 1.373E+03 1.340E+08 4.317E+03 0.000E+00 9.806E-01 1.556E-01 1.227E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.385E-01  
134 1.962E-01 5.694E-02 1.360E+03 1.333E+08 4.339E+03 0.000E+00 9.806E-01 1.558E-01 1.209E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.387E-01  
133 2.074E-01 5.811E-02 1.347E+03 1.326E+08 4.358E+03 0.000E+00 9.806E-01 1.560E-01 1.191E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.389E-01  
132 2.191E-01 5.931E-02 1.333E+03 1.319E+08 4.375E+03 0.000E+00 9.806E-01 1.563E-01 1.172E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.392E-01  
131 2.315E-01 6.052E-02 1.319E+03 1.311E+08 4.390E+03 0.000E+00 9.806E-01 1.566E-01 1.153E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.394E-01  
130 2.444E-01 6.176E-02 1.305E+03 1.304E+08 4.402E+03 0.000E+00 9.806E-01 1.568E-01 1.133E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.397E-01  
129 2.579E-01 6.302E-02 1.290E+03 1.296E+08 4.413E+03 0.000E+00 9.806E-01 1.571E-01 1.113E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.399E-01  
128 2.721E-01 6.430E-02 1.275E+03 1.288E+08 4.421E+03 0.000E+00 9.806E-01 1.574E-01 1.093E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.402E-01  
127 2.869E-01 6.560E-02 1.260E+03 1.279E+08 4.428E+03 0.000E+00 9.806E-01 1.577E-01 1.072E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.405E-01  
126 3.025E-01 6.693E-02 1.244E+03 1.271E+08 4.434E+03 0.000E+00 9.806E-01 1.580E-01 1.050E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.408E-01  
125 3.188E-01 6.828E-02 1.227E+03 1.262E+08 4.439E+03 0.000E+00 9.806E-01 1.583E-01 1.029E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.411E-01  
124 3.358E-01 6.966E-02 1.211E+03 1.252E+08 4.443E+03 0.000E+00 9.806E-01 1.587E-01 1.007E+19 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.414E-01  
123 3.535E-01 7.106E-02 1.193E+03 1.243E+08 4.445E+03 0.000E+00 9.806E-01 1.590E-01 9.844E+18 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.418E-01  
122 3.721E-01 7.249E-02 1.176E+03 1.233E+08 4.448E+03 0.000E+00 9.806E-01 1.594E-01 9.617E+18 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.421E-01  
121 3.915E-01 7.394E-02 1.158E+03 1.223E+08 4.449E+03 0.000E+00 9.806E-01 1.598E-01 9.386E+18 1.619E-04 1.304E-02 8.069E-04 1.840E-03 6.800E-04 3.425E-01  
120 4.117E-01 7.542E-02 1.140E+03 1.212E+08

91 1.405E+00 1.329E-01 4.644E+02 7.699E+07 4.454E+03 0.000E+00 9.806E-01 1.836E-01 2.313E+18 1.960E-04 1.317E-02 6.150E-04 1.840E-03 6.800E-04 3.588E-01  
90 1.450E+00 1.355E-01 4.391E+02 7.522E+07 4.454E+03 0.000E+00 9.806E-01 1.848E-01 2.135E+18 1.976E-04 1.318E-02 6.074E-04 1.840E-03 6.800E-04 3.593E-01  
89 1.495E+00 1.381E-01 4.141E+02 7.345E+07 4.454E+03 0.000E+00 9.806E-01 1.859E-01 1.965E+18 1.992E-04 1.318E-02 6.002E-04 1.840E-03 6.800E-04 3.597E-01  
88 1.540E+00 1.408E-01 3.896E+02 7.168E+07 4.454E+03 0.000E+00 9.806E-01 1.871E-01 1.803E+18 2.006E-04 1.319E-02 5.934E-04 1.840E-03 6.800E-04 3.601E-01  
87 1.585E+00 1.436E-01 3.656E+02 6.991E+07 4.454E+03 0.000E+00 9.806E-01 1.883E-01 1.650E+18 2.020E-04 1.319E-02 5.868E-04 1.840E-03 6.800E-04 3.605E-01  
86 1.630E+00 1.464E-01 3.423E+02 6.814E+07 4.454E+03 0.000E+00 9.806E-01 1.895E-01 1.504E+18 2.034E-04 1.319E-02 5.803E-04 1.840E-03 6.800E-04 3.609E-01  
85 1.674E+00 1.493E-01 3.195E+02 6.638E+07 4.454E+03 0.000E+00 9.806E-01 1.907E-01 1.367E+18 2.047E-04 1.320E-02 5.738E-04 1.840E-03 6.800E-04 3.612E-01  
84 1.718E+00 1.522E-01 2.975E+02 6.462E+07 4.454E+03 0.000E+00 9.806E-01 1.920E-01 1.239E+18 2.060E-04 1.321E-02 5.670E-04 1.840E-03 6.800E-04 3.615E-01  
83 1.761E+00 1.552E-01 2.762E+02 6.288E+07 4.454E+03 0.000E+00 9.806E-01 1.934E-01 1.119E+18 2.075E-04 1.322E-02 5.599E-04 1.840E-03 6.800E-04 3.618E-01  
82 1.803E+00 1.582E-01 2.558E+02 6.114E+07 4.454E+03 0.000E+00 9.806E-01 1.950E-01 1.007E+18 2.089E-04 1.324E-02 5.526E-04 1.840E-03 6.800E-04 3.621E-01  
81 1.844E+00 1.613E-01 2.362E+02 5.941E+07 4.454E+03 0.000E+00 9.806E-01 1.964E-01 9.033E+17 2.098E-04 1.327E-02 5.456E-04 1.840E-03 6.800E-04 3.624E-01  
80 1.885E+00 1.645E-01 2.176E+02 5.770E+07 4.454E+03 0.000E+00 9.806E-01 1.977E-01 8.076E+17 2.097E-04 1.329E-02 5.393E-04 1.840E-03 6.800E-04 3.626E-01  
79 1.924E+00 1.677E-01 1.998E+02 5.600E+07 4.454E+03 0.000E+00 9.806E-01 1.988E-01 7.196E+17 2.084E-04 1.330E-02 5.314E-04 1.840E-03 6.800E-04 3.628E-01  
78 1.962E+00 1.710E-01 1.829E+02 5.432E+07 4.454E+03 0.000E+00 9.806E-01 2.004E-01 6.391E+17 2.063E-04 1.330E-02 5.198E-04 1.840E-03 6.800E-04 3.630E-01  
77 1.999E+00 1.743E-01 1.670E+02 5.266E+07 4.454E+03 0.000E+00 9.806E-01 2.021E-01 5.656E+17 2.044E-04 1.329E-02 5.067E-04 1.840E-03 6.800E-04 3.631E-01  
76 2.034E+00 1.776E-01 1.521E+02 5.102E+07 4.454E+03 0.000E+00 9.806E-01 2.038E-01 4.989E+17 2.028E-04 1.329E-02 4.976E-04 1.840E-03 6.800E-04 3.632E-01  
75 2.068E+00 1.810E-01 1.381E+02 4.941E+07 4.454E+03 0.000E+00 9.806E-01 2.056E-01 4.386E+17 2.014E-04 1.328E-02 4.962E-04 1.840E-03 6.800E-04 3.633E-01  
74 2.101E+00 1.845E-01 1.251E+02 4.782E+07 4.454E+03 0.000E+00 9.806E-01 2.077E-01 3.844E+17 1.998E-04 1.327E-02 5.016E-04 1.840E-03 6.800E-04 3.633E-01  
73 2.132E+00 1.880E-01 1.130E+02 4.625E+07 4.454E+03 0.000E+00 9.806E-01 2.094E-01 3.358E+17 1.978E-04 1.326E-02 5.115E-04 1.840E-03 6.800E-04 3.634E-01  
72 2.161E+00 1.916E-01 1.017E+02 4.471E+07 4.454E+03 0.000E+00 9.806E-01 2.108E-01 2.924E+17 1.950E-04 1.325E-02 5.246E-04 1.840E-03 6.800E-04 3.634E-01  
71 2.189E+00 1.952E-01 9.140E+01 4.321E+07 4.454E+03 0.000E+00 9.806E-01 2.134E-01 2.538E+17 1.914E-04 1.324E-02 5.403E-04 1.840E-03 6.800E-04 3.633E-01  
70 2.215E+00 1.988E-01 8.190E+01 4.173E+07 4.454E+03 0.000E+00 9.806E-01 2.158E-01 2.196E+17 1.871E-04 1.323E-02 5.586E-04 1.840E-03 6.800E-04 3.632E-01  
69 2.239E+00 2.025E-01 7.320E+01 4.028E+07 4.454E+03 0.000E+00 9.806E-01 2.179E-01 1.895E+17 1.822E-04 1.322E-02 5.794E-04 1.840E-03 6.800E-04 3.631E-01  
68 2.262E+00 2.062E-01 6.527E+01 3.887E+07 4.454E+03 0.000E+00 9.806E-01 2.204E-01 1.631E+17 1.767E-04 1.320E-02 6.031E-04 1.840E-03 6.800E-04 3.630E-01  
67 2.283E+00 2.100E-01 5.805E+01 3.749E+07 4.454E+03 0.000E+00 9.806E-01 2.228E-01 1.399E+17 1.709E-04 1.318E-02 6.299E-04 1.840E-03 6.800E-04 3.628E-01  
66 2.303E+00 2.138E-01 5.151E+01 3.615E+07 4.454E+03 0.000E+00 9.806E-01 2.252E-01 1.198E+17 1.649E-04 1.316E-02 6.599E-04 1.840E-03 6.800E-04 3.626E-01  
65 2.321E+00 2.176E-01 4.561E+01 3.484E+07 4.454E+03 0.000E+00 9.806E-01 2.283E-01 1.022E+17 1.587E-04 1.314E-02 6.931E-04 1.840E-03 6.800E-04 3.624E-01  
64 2.338E+00 2.214E-01 4.029E+01 3.357E+07 4.454E+03 0.000E+00 9.806E-01 2.317E-01 8.704E+16 1.524E-04 1.312E-02 7.298E-04 1.840E-03 6.800E-04 3.621E-01  
63 2.354E+00 2.253E-01 3.552E+01 3.233E+07 4.454E+03 0.000E+00 9.806E-01 2.344E-01 7.393E+16 1.461E-04 1.309E-02 7.710E-04 1.840E-03 6.800E-04 3.618E-01  
62 2.368E+00 2.292E-01 3.125E+01 3.113E+07 4.454E+03 0.000E+00 9.806E-01 2.373E-01 6.265E+16 1.399E-04 1.306E-02 8.170E-04 1.840E-03 6.800E-04 3.615E-01  
61 2.381E+00 2.331E-01 2.743E+01 2.996E+07 4.454E+03 0.000E+00 9.806E-01 2.418E-01 5.298E+16 1.338E-04 1.303E-02 8.679E-04 1.840E-03 6.800E-04 3.611E-01  
60 2.393E+00 2.370E-01 2.404E+01 2.883E+07 4.454E+03 0.000E+00 9.806E-01 2.455E-01 4.469E+16 1.279E-04 1.300E-02 9.244E-04 1.840E-03 6.800E-04 3.607E-01  
59 2.404E+00 2.409E-01 2.102E+01 2.774E+07 4.454E+03 0.000E+00 9.806E-01 2.492E-01 3.762E+16 1.221E-04 1.298E-02 9.872E-04 1.840E-03 6.800E-04 3.602E-01  
58 2.413E+00 2.448E-01 1.835E+01 2.668E+07 4.454E+03 0.000E+00 9.806E-01 2.533E-01 3.160E+16 1.165E-04 1.296E-02 1.056E-03 1.840E-03 6.800E-04 3.597E-01  
57 2.422E+00 2.488E-01 1.598E+01 2.565E+07 4.454E+03 0.000E+00 9.806E-01 2.573E-01 2.649E+16 1.109E-04 1.290E-02 1.130E-03 1.840E-03 6.800E-04 3.592E-01  
56 2.430E+00 2.527E-01 1.389E+01 2.466E+07 4.454E+03 0.000E+00 9.806E-01 2.611E-01 2.215E+16 1.053E-04 1.283E-02 1.212E-03 1.840E-03 6.800E-04 3.585E-01  
55 2.437E+00 2.567E-01 1.204E+01 2.371E+07 4.454E+03 0.000E+00 9.806E-01 2.643E-01 1.849E+16 9.991E-05 1.277E-02 1.304E-03 1.840E-03 6.800E-04 3.578E-01  
54 2.443E+00 2.606E-01 1.041E+01 2.280E+07 4.454E+03 0.000E+00 9.806E-01 2.664E-01 1.539E+16 9.454E-05 1.267E-02 1.410E-03 1.840E-03 6.800E-04 3.570E-01  
53 2.449E+00 2.646E-01 8.972E+00 2.194E+07 4.454E+03 0.000E+00 9.806E-01 2.689E-01 1.278E+16 8.936E-05 1.256E-02 1.533E-03 1.840E-03 6.800E-04 3.561E-01  
52 2.454E+00 2.687E-01 7.702E+00 2.111E+07 4.454E+03 0.000E+00 9.806E-01 2.711E-01 1.058E+16 8.284E-05 1.237E-02 1.677E-03 1.840E-03 6.800E-04 3.550E-01  
51 2.459E+00 2.727E-01 6.471E+00 2.033E+07 4.454E+03 0.000E+00 9.806E-01 2.742E-01 8.730E+15 7.635E-05 1.219E-02 1.889E-03 1.840E-03 6.800E-04 3.536E-01  
50 2.463E+00 2.773E-01 4.725E+00 1.956E+07 4.454E+03 0.000E+00 9.806E-01 2.792E-01 7.185E+15 6.781E-05 1.160E-02 2.573E-03 1.840E-03 6.800E-04 3.523E-01  
49 2.466E+00 2.819E-01 3.112E+00 1.878E+07 4.454E+03 0.000E+00 9.806E-01 2.829E-01 5.902E+15 5.363E-05 9.877E-03 4.562E-03 1.840E-03 6.800E-04 3.513E-01  
48 2.470E+00 2.868E-01 2.289E+00 1.797E+07 4.454E+03 0.000E+00 9.806E-01 2.874E-01 4.837E+15 3.888E-05 7.768E-03 6.993E-03 1.840E-03 6.800E-04 3.506E-01  
47 2.473E+00 2.918E-01 1.827E+00 1.714E+07 4.454E+03 0.000E+00 9.806E-01 2.920E-01 3.740E+15 2.979E-05 6.504E-03 8.449E-03 1.840E-03 6.800E-04 3.501E-01  
46 2.475E+00 3.064E-01 1.503E+00 1.632E+07 4.454E+03 0.000E+00 9.806E-01 3.871E-01 3.845E-01 3.207E+15 2.502E-05 5.998E-03 9.034E-03 1.840E-03 6.800E-04 3.498E-01  
45 2.478E+00 3.175E-01 1.249E+00 1.549E+07 4.454E+03 0.000E+00 9.806E-01 3.618E-01 3.911E-01 2.586E+15 2.199E-05 5.833E-03 9.227E-03 1.840E-03 6.800E-04 3.495E-01  
44 2.480E+00 3.256E-01 1.040E+00 1.468E+07 4.454E+03 0.000E+00 9.806E-01 3.455E-01 3.950E-01 2.068E+15 1.960E-05 5.786E-03 9.283E-03 1.840E-03 6.800E-04 3.492E-01  
43 2.483E+00 3.361E-01 8.621E-01 1.387E+07 4.454E+03 0.000E+00 9.806E-01 3.346E-01 3.988E-01 1.635E+15 1.810E-05 5.775E-03 9.298E-03 1.840E-03 6.800E-04 3.490E-01  
42 2.485E+00 3.475E-01 7.094E-01 1.306E+07 4.454E+03 0.000E+00 9.806E-01 3.273E-01 4.014E-01 1.275E+15 5.534E-05 5.728E-03 9.301E-03 1.840E-03 6.800E-04 3.487E-01  
41 2.487E+00 3.597E-01 5.770E-01 1.225E+07 4.454E+03 0.000E+00 9.806E-01 3.223E-01 4.026E-01 9.772E+14 5.608E-04 5.138E-03 9.302E-03 1.840E-03 6.800E-04 3.484E-01  
40 2.489E+00 3.731E-01 4.619E-01 1.143E+07 4.454E+03 0.000E+00 9.806E-01 3.191E-01 4.046E-01 7.328E+14 1.612E-03 3.911E-03 9.302E-03 1.840E-03 6.800E-04 3.479E-01  
39 2.491E+00 3.878E-01 3.622E-01 1.061E+07 4.454E+03 0.000E+00 9.806E-01 3.170E-01 4.081E-01 5.347E+14 2.108E-03 3.332E-03 9.302E-03 1.840E-03 6.800E-04 3.473E-01  
38 2.493E+00 4.042E-01 2.765E-01 9.775E+06 4.454E+03 0.000E+00 9.806E-01 3.157E-01 4.121E-01 3.770E+14 2.19E-03 3.204E-03 9.302E-03 1.840E-03 6.800E-04 3.465E-01  
37 2.494E+00 4.225E-01 2.042E-01 8.930E+06 4.454E+03 0.000E+00 9.806E-01 3.150E-01 4.181E-01 2.550E+14 2.235E-03 3.184E-03 9.302E-03 1.840E-03 6.800E-04 3.454E-01  
36 2.496E+00 4.430E-01 1.452E-01 8.077E+06 4.454E+03 0.000E+00 9.806E-01 3.146E-01 4.312E-01 1.644E+14 2.237E-03 3.182E-03 9.302E-03 1.840E-03 6.800E-04 3.440E-01  
35 2.497E+00 4.658E-01 9.903E-02 7.229E+06 4.454E+03 0.000E+00 9.806E-01 3.144E-01 4.461E-01 1.007E+14 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.422E-01  
34 2.498E+00 4.906E-01 6.487E-02 6.408E+06 4.454E+03 0.000E+00 9.806E-01 3.144E-01 4.689E-01 5.874E+13 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.399E-01  
33 2.499E+00 5.169E-01 4.104E-02 5.633E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 4.961E-01 3.284E+13 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.372E-01  
32 2.499E+00 5.440E-01 2.526E-02 4.920E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 5.319E-01 1.777E+13 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.342E-01  
31 2.499E+00 5.714E-01 1.525E-02 4.276E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 5.748E-01 9.393E+12 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.309E-01  
30 2.500E+00 5.984E-01 9.088E-03 3.701E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 6.239E-01 4.882E+12 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.275E-01  
29 2.500E+00 6.246E-01 5.369E-03 3.190E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 6.777E-01 2.507E+12 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.243E-01  
28 2.500E+00 6.495E-01 3.164E-03 2.734E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 7.460E-01 1.275E+12 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.216E-01  
27 2.500E+00 6.729E-01 1.875E-03 2.321E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 8.132E-01 6.438E+11 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.203E-01  
26 2.500E+00 6.942E-01 1.118E-03 1.953E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 8.396E-01 3.230E+11 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.204E-01  
25 2.500E+00 7.134E-01 6.653E-04 1.639E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 8.193E-01 1.611E+11 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.207E-01  
24 2.500E+00 7.304E-01 3.918E-04 1.380E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 8.050E-01 8.002E+10 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.201E-01  
23 2.500E+00 7.456E-01 2.288E-04 1.165E+06 4.454E+03 0.000E+00 9.806E-01 3.143E-01 8.120E-01 3.962E+10 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.188E-01  
22 2.500E+00 7.590E-01 1.326E-04 9.881E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 8.259E-01 1.958E+10 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.168E-01  
21 2.500E+00 7.709E-01 7.629E-05 8.406E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 8.609E-01 9.668E+09 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.140E-01  
20 2.500E+00 7.814E-01 4.350E-05 7.190E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 8.887E-01 4.775E+09 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.103E-01  
19 2.500E+00 7.908E-01 2.443E-05 6.200E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 9.404E-01 2.359E+09 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 3.050E-01  
18 2.500E+00 7.994E-01 1.355E-05 5.381E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 1.047E+00 1.167E+09 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.986E-01  
17 2.500E+00 8.071E-01 7.458E-06 4.683E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 1.206E+00 5.794E+08 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.920E-01  
16 2.500E+00 8.142E-01 4.101E-06 4.077E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 1.408E+00 2.890E+08 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.858E-01  
15 2.500E+00 8.207E-01 2.259E-06 3.547E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 1.627E+00 1.450E+08 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.802E-01  
14 2.500E+00 8.267E-01 1.242E-06 3.089E+05 4.454E+03 0.000E+00 9.806E-01 3.143E-01 1.844E+00 7.330E+07 2.238E-03 3.181E-03 9.302E-03 1.840E-03 6.800E-04 2.751E-01  
13 2.500E+00

## DAFTAR RIWAYAT HIDUP

### A. IDENTITAS DIRI

1. Nama lengkap : INDAH KHAIRUN NI'MAH
2. Jenis Kelamin : Perempuan
3. Tempat, tanggal lahir : Lumajang, 29 Agustus 1990
4. Alamat Asal : Jl. Pisang Agung No. 47E Lumajang, Jatim
5. Prodi : Fisika
6. Fakultas : Sains dan Teknologi
7. Universitas : UIN Sunan Kalijaga Yogyakarta
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10. Facebook : Inka Salsa Broer

### B. RIWAYAT PENDIDIKAN

NO.	JENJANG	NAMA SEKOLAH	TAHUN LULUS
1.	SD	SD Islam Tompokersan Lumajang	2003
2.	SMP	SMP Negeri 1 Lumajang	2006
3.	SMA	SMA Negeri 2 Lumajang	2009
4.	S1	UIN Sunan Kalijaga Yogyakarta	2009-sekarang