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СООБЩЕНИЯ  
ОБЪЕДИНЕННОГО  
ИНСТИТУТА  
ЯДЕРНЫХ  
ИССЛЕДОВАНИЙ

ДУБНА



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7 - 7227

В.И. Илющенко, В.И. Кочкин

ИОНИЗАЦИОННЫЕ ПОТЕНЦИАЛЫ  
ЭЛЕМЕНТОВ С  $Z = 2 - 36$

**1973**

ЛАБОРАТОРИЯ ВЫСОКИХ ЭНЕРГИЙ

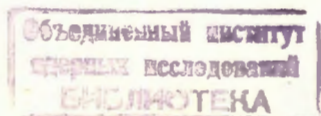
7 - 7227

В.И. Илющенко, В.И. Кочкин \*

ИОНИЗАЦИОННЫЕ ПОТЕНЦИАЛЫ  
ЭЛЕМЕНТОВ С  $Z = 2 - 36$

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Ионизационные потенциалы элементов с  $z = 2 - 36$

Приведены таблицы ионизационных потенциалов, вычисленные по методу Слейтер-М для элементов с  $Z = 2 - 36$ . Расчеты выполнены на ЭВМ БЭСМ-6 по ФОРТРАН-программе IP. В таблицах указаны атомный номер, электронная структура, набор потенциалов и сумма потенциалов.

Сообщение Объединенного института ядерных исследований  
Дубна, 1973

При вычислении сечений последовательной ионизации элементов с  $Z = 2 - 103$ , необходимо использовать полный набор ионизационных потенциалов /ИП/ равновесной ионизации<sup>/1/</sup>.

Экспериментальные значения ИП известны в настоящее время полностью только для элементов с  $Z = 1 - 20^{2/}$ . Для химических элементов с  $Z = 20 - 42$  измерены в основном первые 5 - 10 ИП, для элементов с  $Z = 43 - 103$  в ряде случаев неизвестны даже первые ИП.

С другой стороны, в последнее время выполнены квантово-механические расчеты ИП для элементов с  $Z = 2 - 103^{3/}$ . В водородоподобном приближении вычислены также наборы ИП для элементов с  $Z = 31 - 92^{4/}$ . К сожалению, в последней работе приведены ИП только для внутренних  $n\ell$  - подоболочек. Между тем, ранее было показано, что аналогичные расчеты в рамках модифицированного метода Слейтера обеспечивают результаты, которые в ряде случаев уже в приближении Слейтер-М дают наборы ИП, более близкие к экспериментальным значениям, чем соответствующие "точные" квантовомеханические ИП.

Ниже приведены таблицы ИП, вычисленные по методу Слейтер-М<sup>/1/</sup> для элементов с  $Z = 2 - 36$ .

Расчеты выполнены на ЭВМ БЭСМ - 6 по ФОРТРАН - программе IP.

В таблицах указан атомный номер элемента  $Z$ , электронная структура, т.е. число электронов в соответствующих  $n\ell$  - подоболочках атома, набор ИП и сумма всех ИП, т.е. полная энергия связи всех электронов  $E_T$ .

Общее время счета для  $Z = 2 - 103$  равно  $\sim 15$  мин.

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Рукопись поступила в издательский отдел  
5 июня 1973 года.

\*EXECUTE

|          |   |       |         |   |       |          |
|----------|---|-------|---------|---|-------|----------|
| MOWGL1   | E | 01000 | NEXTLE+ | E | 02344 | FT*723   |
| PROGRAM  | E | 01000 | RK*     | E | 02361 | FT*003   |
| *VAR*    | C | 01036 | MSV*    | E | 02632 | NF       |
| *A*      | C | 01070 | IOCONT* | E | 03843 | ND       |
| *BEG*    | C | 01250 | IOAC*   | E | 03874 | NP       |
| *B*      | C | 01604 | FT*722  | E | 03107 | NS       |
| STOP*    |   | 01610 | FT*642  | E | 03107 | DEFIN    |
| IP       |   | 01620 | FT*882  | E | 03107 | DEFI     |
| GEN      |   | 02113 | FD*642  | E | 03110 | BCDBEG*  |
| BCDWRIT* |   | 02326 | FD*722  | E | 03110 | FT2*     |
| FT*421   | E | 02326 | FC*722  | E | 03110 | KONV1*   |
| BCDENC*  | E | 02332 | FC*642  | E | 03110 | PRINT80  |
| FT*611   | E | 02332 | FC*802  | E | 03110 | PRINT8   |
| FT*571   | E | 02334 | IOEND*  | E | 03115 | SUBPERR* |
| FT*561   | E | 02337 | FT*643  | E | 03115 | PRINT82  |

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Z# 1
1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 1.360+01
SUMMA# 1.360+01
Z# 2
1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P
2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 2.421+01
2 5.440+01
SUMMA# 7.861+01
Z# 3
1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P
2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 6.664+00
2 7.589+01
3 1.224+02
SUMMA# 2.050+02
Z# 4
1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P
2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 8.993+00
2 1.958+01
3 1.548+02
4 2.176+02
SUMMA# 4.009+02
Z# 5
1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P
2 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 1.102+01
2 2.393+01
3 3.930+01
4 2.808+02
5 3.400+02
SUMMA# 6.731+02
Z# 6
1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P
2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 1.216+01
2 2.664+01
3 4.571+01
4 6.582+01
5 3.941+02
6 4.896+02
SUMMA# 1.036+03
Z# 7
1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P
2 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

```

1 1.708+01  
 2 3.184+01  
 3 4.910+01  
 4 7.427+01  
 5 9.914+01  
 6 5.546+02  
 7 6.664+02  
 SUMMA= 1.492+03

Z= 8  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 1.979+01  
 2 3.681+01  
 3 5.632+01  
 4 7.834+01  
 5 1.096+02  
 6 1.393+02  
 7 7.423+02  
 8 8.704+02  
 SUMMA= 2.053+03

Z= 9  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 2.227+01  
 2 4.153+01  
 3 6.332+01  
 4 8.760+01  
 5 1.144+02  
 6 1.518+02  
 7 1.862+02  
 8 9.572+02  
 9 1.102+03  
 SUMMA= 2.726+03

Z= 10  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 2.453+01  
 2 4.607+01  
 3 7.401+01  
 4 9.664+01  
 5 1.257+02  
 6 1.572+02  
 7 2.008+02  
 8 2.399+02  
 9 1.199+03  
 10 1.360+03  
 SUMMA= 3.520+03

Z= 11  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 1.022+01  
 2 5.037+01  
 3 7.467+01  
 4 1.055+02  
 5 1.368+02  
 6 1.706+02  
 7 2.069+02  
 8 2.565+02  
 9 3.004+02  
 10 1.469+03  
 11 1.646+03  
 SUMMA= 4.428+03

Z= 12  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 1.234+01

2 1.958+01  
 3 8.301+01  
 4 1.141+02  
 5 1.476+02  
 6 1.837+02  
 7 2.222+02  
 8 2.633+02  
 9 3.191+02  
 10 3.677+02  
 11 1.765+03  
 12 1.958+03  
 SUMMA= 5.456+03

Z= 13  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 1.380+01  
 2 2.261+01  
 3 3.198+01  
 4 1.225+02  
 5 1.583+02  
 6 1.966+02  
 7 2.374+02  
 8 2.807+02  
 9 3.265+02  
 10 3.884+02  
 11 4.419+02  
 12 2.889+03  
 13 2.298+03  
 SUMMA= 6.608+03

Z= 14  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 1.609+01  
 2 2.418+01  
 3 3.591+01  
 4 4.739+01  
 5 1.687+02  
 6 2.093+02  
 7 2.523+02  
 8 2.979+02  
 9 3.460+02  
 10 3.966+02  
 11 4.646+02  
 12 5.228+02  
 13 2.440+03  
 14 2.666+03  
 SUMMA= 7.887+03

Z= 15  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 1.847+01  
 2 2.737+01  
 3 3.778+01  
 4 5.223+01  
 5 6.582+01  
 6 2.317+02  
 7 2.671+02  
 8 3.149+02  
 9 3.652+02  
 10 4.181+02  
 11 4.734+02  
 12 5.476+02  
 13 6.105+02  
 14 2.818+03  
 15 3.060+03  
 SUMMA= 9.298+03

Z= 16  
 1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P  
 2 2 6 2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
 1 2.2076+01  
 2 3.2086+01  
 3 4.208+01  
 4 5.440+01  
 5 7.157+01  
 6 8.728+01  
 7 2.816+02  
 8 3.317+02  
 9 3.843+02  
 10 4.394+02  
 11 4.970+02  
 12 5.571+02  
 13 6.373+02  
 14 7.050+02  
 15 3.223+03  
 16 3.482+03  
 SUMMA= 1.084+04

Z= 17  
 1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P  
 2 2 6 2 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
 1 2.295+01  
 2 3.406+01  
 3 4.628+01  
 4 5.961+01  
 5 7.404+01  
 6 9.394+01  
 7 1.118+02  
 8 3.482+02  
 9 4.031+02  
 10 4.604+02  
 11 5.203+02  
 12 5.826+02  
 13 6.475+02  
 14 7.339+02  
 15 8.063+02  
 16 3.655+03  
 17 3.930+03  
 SUMMA= 1.253+04

Z= 18  
 1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P  
 2 2 6 2 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0  
 1 2.505+01  
 2 3.716+01  
 3 5.038+01  
 4 6.471+01  
 5 8.016+01  
 6 9.671+01  
 7 1.193+02  
 8 1.393+02  
 9 4.217+02  
 10 4.813+02  
 11 5.434+02  
 12 6.080+02  
 13 6.751+02  
 14 7.447+02  
 15 8.372+02  
 16 9.145+02  
 17 4.115+03  
 18 4.406+03  
 SUMMA= 1.436+04

EXECUTE

|          |   |       |         |   |       |          |
|----------|---|-------|---------|---|-------|----------|
| HOWGLY   | E | 01000 | IOCONT* | E | 03375 | IP       |
| PROGRAM  | E | 01000 | IOAC*   | E | 03426 | I*MI*    |
| *VAR*    | C | 02106 | FT*722  | E | 03441 | BCOBEG*  |
| *A*      | C | 02140 | FT*642  | E | 03441 | FT2*     |
| *REG*    | C | 02320 | FT*002  | E | 03421 | KONV1*   |
| *B*      | C | 02654 | FD*642  | E | 03442 | PRINT80  |
| BCONRT*  | E | 02660 | FD*722  | E | 03442 | PRINT8   |
| FT*621   | E | 02660 | FC*722  | E | 03442 | SUBPERR* |
| BCDENC*  | E | 02664 | FC*642  | E | 03442 | PRINT82  |
| FT*611   | E | 02664 | FC*002  | E | 03442 | BCDPUN2  |
| FT*571   | E | 02666 | IOEND*  | E | 03447 | PT8PUN   |
| FT*561   | E | 02671 | FT*643  | E | 03447 | PTSPUN   |
| NEXTLET* | E | 02676 | FT*723  | E | 03447 | BINPUN   |
| RK*      | E | 02713 | FT*003  | E | 03447 | PT8BNP   |
| WSY*     | E | 03164 | STOP*   | E | 04410 | PT5BNP   |

Z= 19  
 1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P  
 2 2 6 2 6 0 1 0 0 0 0 0 0 0 0 0 0 0 0  
 1 6.716+00  
 2 4.016+01  
 3 5.438+01  
 4 6.972+01  
 5 8.617+01  
 6 1.037+02  
 7 1.224+02  
 8 1.477+02  
 9 1.698+02  
 10 5.019+02  
 11 5.663+02  
 12 6.331+02  
 13 7.025+02  
 14 7.744+02  
 15 8.488+02  
 16 9.474+02  
 17 1.029+03  
 18 4.602+03  
 19 4.910+03  
 SUMMA= 1.632+04

Z= 20  
 1S 2S 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P  
 2 2 6 2 6 0 2 0 0 0 0 0 0 0 0 0 0 0 0  
 1 8.111+00  
 2 1.287+01  
 3 5.829+01  
 4 7.463+01  
 5 9.209+01  
 6 1.107+02  
 7 1.303+02  
 8 1.511+02  
 9 1.792+02  
 10 2.033+02  
 11 5.889+02  
 12 6.581+02  
 13 7.297+02  
 14 8.038+02  
 15 8.805+02  
 16 9.596+02  
 17 1.064+03  
 18 1.151+03  
 19 5.116+03  
 20 5.440+03  
 SUMMA= 1.841+04  
 Z= 21

1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p

|        |   |   |          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2      | 2 | 6 | 2        | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1      |   |   | 9.303+00 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2      |   |   | 1.435+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3      |   |   | 3.198+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4      |   |   | 7.045+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5      |   |   | 9.790+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6      |   |   | 1.175+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7      |   |   | 1.382+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8      |   |   | 1.599+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9      |   |   | 1.828+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10     |   |   | 2.136+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11     |   |   | 2.399+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12     |   |   | 6.828+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 13     |   |   | 7.567+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 14     |   |   | 8.331+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 15     |   |   | 9.120+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 16     |   |   | 9.934+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 17     |   |   | 1.077+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 18     |   |   | 1.188+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 19     |   |   | 1.280+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 20     |   |   | 5.657+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 21     |   |   | 5.998+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| SUMMA= |   |   | 2.066+04 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

Z= 22  
1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p

|        |   |   |          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2      | 2 | 6 | 2        | 6 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1      |   |   | 1.058+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2      |   |   | 1.589+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3      |   |   | 3.591+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4      |   |   | 4.739+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5      |   |   | 1.036+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6      |   |   | 1.242+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7      |   |   | 1.459+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8      |   |   | 1.687+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9      |   |   | 1.926+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10     |   |   | 2.176+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11     |   |   | 2.511+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12     |   |   | 2.795+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 13     |   |   | 7.834+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 14     |   |   | 8.621+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 15     |   |   | 9.432+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 16     |   |   | 1.027+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 17     |   |   | 1.133+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 18     |   |   | 1.202+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 19     |   |   | 1.319+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 20     |   |   | 1.415+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 21     |   |   | 6.226+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 22     |   |   | 6.582+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| SUMMA= |   |   | 2.307+04 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

Z= 23  
1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p

|    |   |   |          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----|---|---|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2  | 2 | 6 | 2        | 6 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1  |   |   | 1.193+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2  |   |   | 1.752+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3  |   |   | 3.975+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4  |   |   | 5.223+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5  |   |   | 6.582+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6  |   |   | 1.308+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7  |   |   | 1.535+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8  |   |   | 1.773+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9  |   |   | 2.022+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10 |   |   | 2.282+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11 |   |   | 2.554+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12 |   |   | 2.916+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 13 |   |   | 3.221+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

14 8.909+02  
15 9.743+02  
16 1.060+03  
17 1.149+03  
18 1.240+03  
19 1.333+03  
20 1.456+03  
21 1.557+03  
22 6.821+03  
23 7.194+03  
SUMMA= 2.562+04

Z= 24  
1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p

|        |   |   |          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2      | 2 | 6 | 2        | 6 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1      |   |   | 1.287+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2      |   |   | 3.111+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3      |   |   | 4.349+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4      |   |   | 5.698+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5      |   |   | 7.157+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6      |   |   | 8.728+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7      |   |   | 1.610+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8      |   |   | 1.859+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9      |   |   | 2.118+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10     |   |   | 2.388+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11     |   |   | 2.669+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12     |   |   | 2.962+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 13     |   |   | 3.351+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 14     |   |   | 3.677+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 15     |   |   | 1.005+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 16     |   |   | 1.093+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 17     |   |   | 1.184+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 18     |   |   | 1.277+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 19     |   |   | 1.373+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 20     |   |   | 1.471+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 21     |   |   | 1.600+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 22     |   |   | 1.706+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 23     |   |   | 7.444+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 24     |   |   | 7.834+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| SUMMA= |   |   | 2.835+04 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

Z= 25  
1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p

|    |   |   |          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----|---|---|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2  | 2 | 6 | 2        | 6 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1  |   |   | 1.487+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2  |   |   | 2.102+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3  |   |   | 4.713+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4  |   |   | 6.162+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5  |   |   | 7.723+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6  |   |   | 9.394+01 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7  |   |   | 1.118+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8  |   |   | 1.943+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9  |   |   | 2.212+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10 |   |   | 2.492+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11 |   |   | 2.784+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12 |   |   | 3.086+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 13 |   |   | 3.400+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 14 |   |   | 3.817+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 15 |   |   | 4.164+02 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 16 |   |   | 1.126+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 17 |   |   | 1.219+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 18 |   |   | 1.315+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 19 |   |   | 1.412+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 20 |   |   | 1.513+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 21 |   |   | 1.616+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 22 |   |   | 1.751+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 23 |   |   | 1.862+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 24 |   |   | 8.094+03 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

25 8.500+03  
 SUMMA= 3.123+04  
 Z= 26  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 6 6 2 0 0 0 0 0 0 0 0 0 0 0 0  
 1 1.646+01  
 2 2.289+01  
 3 5.088+01  
 4 6.617+01  
 5 8.278+01  
 6 1.005+02  
 7 1.193+02  
 8 1.393+02  
 9 2.306+02  
 10 2.596+02  
 11 2.897+02  
 12 3.210+02  
 13 3.534+02  
 14 3.868+02  
 15 4.312+02  
 16 4.681+02  
 17 1.254+03  
 18 1.352+03  
 19 1.452+03  
 20 1.555+03  
 21 1.660+03  
 22 1.767+03  
 23 1.909+03  
 24 2.024+03  
 25 8.772+03  
 26 9.194+03  
 SUMMA= 3.428+04  
 Z= 27  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 6 7 2 0 0 0 0 0 0 0 0 0 0 0 0  
 1 1.813+01  
 2 2.484+01  
 3 5.412+01  
 4 7.062+01  
 5 8.823+01  
 6 1.070+02  
 7 1.268+02  
 8 1.477+02  
 9 1.698+02  
 10 2.698+02  
 11 3.010+02  
 12 3.333+02  
 13 3.666+02  
 14 4.011+02  
 15 4.367+02  
 16 4.838+02  
 17 5.228+02  
 18 1.389+03  
 19 1.491+03  
 20 1.596+03  
 21 1.703+03  
 22 1.813+03  
 23 1.926+03  
 24 2.073+03  
 25 2.194+03  
 26 9.476+03  
 27 9.914+03  
 SUMMA= 3.750+04  
 Z= 28  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 6 8 2 0 0 0 0 0 0 0 0 0 0 0 0

1 1.987+01  
 2 2.606+01  
 3 5.747+01  
 4 7.497+01  
 5 9.359+01  
 6 1.133+02  
 7 1.342+02  
 8 1.561+02  
 9 1.792+02  
 10 2.033+02  
 11 3.122+02  
 12 3.474+02  
 13 3.798+02  
 14 4.153+02  
 15 4.519+02  
 16 4.896+02  
 17 5.394+02  
 18 5.805+02  
 19 1.530+03  
 20 1.637+03  
 21 1.747+03  
 22 1.859+03  
 23 1.974+03  
 24 2.091+03  
 25 2.245+03  
 26 2.370+03  
 27 1.021+04  
 28 1.066+04  
 SUMMA= 4.090+04  
 Z= 29  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 6 10 1 0 0 0 0 0 0 0 0 0 0 0 0  
 1 2.102+01  
 2 4.382+01  
 3 6.672+01  
 4 7.923+01  
 5 9.885+01  
 6 1.196+02  
 7 1.414+02  
 8 1.644+02  
 9 1.884+02  
 10 2.136+02  
 11 2.399+02  
 12 3.575+02  
 13 3.929+02  
 14 4.294+02  
 15 4.670+02  
 16 5.057+02  
 17 5.455+02  
 18 5.980+02  
 19 6.413+02  
 20 1.678+03  
 21 1.790+03  
 22 1.905+03  
 23 2.022+03  
 24 2.141+03  
 25 2.263+03  
 26 2.423+03  
 27 2.553+03  
 28 1.097+04  
 29 1.144+04  
 SUMMA= 4.449+04  
 Z= 30  
 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p  
 2 2 6 2 6 10 2 0 0 0 0 0 0 0 0 0 0 0 0  
 1 2.361+01



|        |          |
|--------|----------|
| 2      | 3.115+01 |
| 3      | 6.387+01 |
| 4      | 8.338+01 |
| 5      | 1.040+02 |
| 6      | 1.257+02 |
| 7      | 1.486+02 |
| 8      | 1.726+02 |
| 9      | 1.976+02 |
| 10     | 2.238+02 |
| 11     | 2.511+02 |
| 12     | 2.795+02 |
| 13     | 4.058+02 |
| 14     | 4.433+02 |
| 15     | 4.820+02 |
| 16     | 5.217+02 |
| 17     | 5.625+02 |
| 18     | 6.044+02 |
| 19     | 6.597+02 |
| 20     | 7.050+02 |
| 21     | 1.833+03 |
| 22     | 1.950+03 |
| 23     | 2.069+03 |
| 24     | 2.191+03 |
| 25     | 2.315+03 |
| 26     | 2.442+03 |
| 27     | 2.608+03 |
| 28     | 2.742+03 |
| 29     | 1.175+04 |
| 30     | 1.224+04 |
| SUMMA= | 4.823+04 |

|        |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|--------|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Z=     | 31       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1s     | 2s       | 2p | 3s | 3p | 3d | 4s | 4p | 4d | 4f | 5s | 5p | 5d | 5f | 6s | 6p | 6d | 7s | 7p |
| 2      | 2        | 6  | 2  | 6  | 10 | 2  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 1      | 1.148+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2      | 3.434+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3      | 4.327+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4      | 8.744+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5      | 1.091+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6      | 1.318+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7      | 1.557+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8      | 1.806+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9      | 2.067+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10     | 2.339+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11     | 2.622+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12     | 2.916+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13     | 3.221+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14     | 4.572+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15     | 4.968+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16     | 5.376+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 17     | 5.794+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 18     | 6.223+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 19     | 6.664+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 20     | 7.244+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21     | 7.718+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 22     | 1.995+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 23     | 2.117+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 24     | 2.241+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 25     | 2.367+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 26     | 2.496+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 27     | 2.628+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 28     | 2.800+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 29     | 2.939+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 30     | 1.257+04 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 31     | 1.307+04 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| SUMMA= | 5.214+04 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Z=     | 32       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

|        |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|--------|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1s     | 2s       | 2p | 3s | 3p | 3d | 4s | 4p | 4d | 4f | 5s | 5p | 5d | 5f | 6s | 6p | 6d | 7s | 7p |
| 2      | 2        | 6  | 2  | 6  | 10 | 2  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 1      | 1.336+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2      | 1.923+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3      | 4.705+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4      | 5.738+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5      | 1.140+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6      | 1.378+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7      | 1.626+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8      | 1.886+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9      | 2.157+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10     | 2.439+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11     | 2.732+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12     | 3.036+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13     | 3.351+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14     | 3.677+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15     | 5.116+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16     | 5.534+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 17     | 5.962+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 18     | 6.401+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 19     | 6.852+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 20     | 7.314+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21     | 7.921+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 22     | 8.416+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 23     | 2.164+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 24     | 2.290+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 25     | 2.419+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 26     | 2.550+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 27     | 2.684+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 28     | 2.820+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 29     | 2.998+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 30     | 3.142+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 31     | 1.341+04 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 32     | 1.393+04 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| SUMMA= | 5.623+04 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

|    |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Z= | 33       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 1s | 2s       | 2p | 3s | 3p | 3d | 4s | 4p | 4d | 4f | 5s | 5p | 5d | 5f | 6s | 6p | 6d | 7s | 7p |
| 2  | 2        | 6  | 2  | 6  | 10 | 2  | 3  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 1  | 1.516+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2  | 2.170+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3  | 2.897+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4  | 6.176+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5  | 7.347+01 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6  | 1.437+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7  | 1.695+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8  | 1.963+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9  | 2.246+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10 | 2.538+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11 | 2.841+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12 | 3.155+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13 | 3.480+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14 | 3.817+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15 | 4.164+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16 | 5.698+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 17 | 6.129+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 18 | 6.578+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 19 | 7.039+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 20 | 7.511+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21 | 7.994+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 22 | 8.628+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 23 | 9.143+02 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 24 | 2.339+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 25 | 2.470+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 26 | 2.604+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 27 | 2.740+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 28 | 2.878+03 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

29 3.019+03  
 30 3.204+03  
 31 3.352+03  
 32 1.427+04  
 33 1.481+04  
 SUMMA= 6.050+04

•EXECUTE

|          |   |       |         |   |       |          |  |
|----------|---|-------|---------|---|-------|----------|--|
| MOWGLI   | E | 01000 | IOCONT* | E | 03376 | IP       |  |
| PROGRAM  | E | 01000 | IOAC*   | E | 03427 | I*MU1*   |  |
| *VAR*    | C | 02107 | FT*722  | E | 03442 | BCDBEG*  |  |
| *A*      | C | 02141 | FT*642  | E | 03442 | FT2*     |  |
| *BEG*    | C | 02321 | FT*002  | E | 03442 | KONV1*   |  |
| *B*      | C | 02655 | FD*642  | E | 03443 | PRINT80  |  |
| B*DNWRT* | E | 02661 | FD*722  | E | 03443 | PRINT8   |  |
| FT*021   | E | 02661 | FC*722  | E | 03443 | SUBPERR* |  |
| BCDENC*  | E | 02665 | FC*642  | E | 03443 | PRINT82  |  |
| FT*611   | E | 02665 | FC*002  | E | 03443 | BCDPUN2  |  |
| FT*571   | E | 02667 | IOEND*  | E | 03450 | PT8PUN   |  |
| FT*561   | E | 02672 | FT*643  | E | 03450 | PT5PUN   |  |
| NEXTLET* | E | 02677 | FT*723  | E | 03450 | B1NPUN   |  |
| RK*      | E | 02714 | FT*003  | E | 03450 | PT8BNP   |  |
| WSV*     | E | 03165 | STOP*   | E | 04411 | PT5BNP   |  |

Z= 34  
 1s 2s 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P  
 2 2 6 2 6 10 2 4 0 0 0 0 0 0 0 0 0 0 0

1 1.691+01  
 2 2.411+01  
 3 3.203+01  
 4 4.069+01  
 5 7.845+01  
 6 9.155+01  
 7 1.763+02  
 8 2.043+02  
 9 2.334+02  
 10 2.636+02  
 11 2.949+02  
 12 3.273+02  
 13 3.608+02  
 14 3.955+02  
 15 4.312+02  
 16 4.681+02  
 17 5.069+02  
 18 6.475+02  
 19 7.225+02  
 20 7.707+02  
 21 8.200+02  
 22 8.704+02  
 23 9.235+02  
 24 9.803+02  
 25 2.521+03  
 26 2.657+03  
 27 2.796+03  
 28 2.936+03  
 29 3.080+03  
 30 3.225+03  
 31 3.416+03  
 32 3.569+03  
 33 1.517+04  
 34 1.572+04  
 SUMMA= 6.495+04

Z= 35  
 1s 2s 2P 3S 3P 3D 4S 4P 4D 4F 5S 5P 5D 5F 6S 6P 6D 7S 7P  
 2 2 6 2 6 10 2 5 0 0 0 0 0 0 0 0 0 0 0

1 1.859+01  
 2 2.644+01  
 3 3.503+01  
 4 4.435+01  
 5 5.440+01  
 6 9.712+01  
 7 1.116+02

|  |          |
|--|----------|
| 8  | 2.120+02 |
| 9  | 2.420+02 |
| 10   | 2.733+02 |
| 11   | 3.056+02 |
| 12   | 3.390+02 |
| 13   | 3.735+02 |
| 14   | 4.092+02 |
| 15   | 4.459+02 |
| 16   | 4.838+02 |
| 17   | 5.228+02 |
| 18   | 5.630+02 |
| 19   | 6.040+02 |
| 20   | 6.460+02 |
| 21   | 6.895+02 |
| 22   | 7.344+02 |
| 23   | 7.807+02 |
| 24   | 8.284+02 |
| 25   | 8.775+02 |
| 26   | 9.280+02 |
| 27   | 9.799+02 |
| 28   | 1.033+03 |
| 29   | 1.069+03 |
| 30   | 1.107+03 |
| 31   | 1.147+03 |
| 32   | 1.189+03 |
| 33   | 1.233+03 |
| 34   | 1.279+03 |
| 35   | 1.327+03 |
| SUMMA=   | 6.958+04 |
| Z=   | 36       |
| 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p |          |
| 2 2 6 2 6 10 2 6 0 0 0 0 0 0 0 0 0 0 0                   |          |
| 1  | 2.020+01 |
| 2  | 2.872+01 |
| 3  | 3.797+01 |
| 4  | 4.795+01 |
| 5  | 5.866+01 |
| 6  | 7.010+01 |
| 7  | 8.237+01 |
| 8  | 9.547+01 |
| 9  | 1.094+02 |
| 10   | 1.268+02 |
| 11   | 1.460+02 |
| 12   | 1.671+02 |
| 13   | 1.902+02 |
| 14   | 2.154+02 |
| 15   | 2.427+02 |
| 16   | 2.721+02 |
| 17   | 3.036+02 |
| 18   | 3.372+02 |
| 19   | 3.729+02 |
| 20   | 4.107+02 |
| 21   | 4.506+02 |
| 22   | 4.926+02 |
| 23   | 5.367+02 |
| 24   | 5.829+02 |
| 25   | 6.312+02 |
| 26   | 6.816+02 |
| 27   | 7.341+02 |
| 28   | 7.887+02 |
| 29   | 8.454+02 |
| 30   | 9.042+02 |
| 31   | 9.651+02 |
| 32   | 1.028+03 |
| 33   | 1.112+03 |
| 34   | 1.203+03 |

|  |          |
|--|----------|
| 35   | 1.704+04 |
| 36   | 1.763+04 |
| SUMMA=   | 7.440+04 |
| Z=   | 37       |
| 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p |          |
| 2 2 6 2 6 10 2 6 0 0 1 0 0 0 0 0 0 0 0                   |          |
| 1  | 5.746+00 |
| 2  | 3.093+01 |
| 3  | 4.084+01 |
| 4  | 5.148+01 |
| 5  | 6.285+01 |
| 6  | 7.495+01 |
| 7  | 8.778+01 |
| 8  | 1.024+02 |
| 9  | 1.577+02 |
| 10   | 2.223+02 |
| 11   | 3.067+02 |
| 12   | 4.021+02 |
| 13   | 5.097+02 |
| 14   | 6.363+02 |
| 15   | 7.751+02 |
| 16   | 9.270+02 |
| 17   | 1.094+03 |
| 18   | 1.598+03 |
| 19   | 2.143+03 |
| 20   | 2.729+03 |
| 21   | 3.357+03 |
| 22   | 4.027+03 |
| 23   | 4.739+03 |
| 24   | 5.493+03 |
| 25   | 6.289+03 |
| 26   | 7.127+03 |
| 27   | 8.007+03 |
| 28   | 8.929+03 |
| 29   | 9.893+03 |
| 30   | 1.090+04 |
| 31   | 1.281+04 |
| 32   | 1.476+04 |
| 33   | 1.675+04 |
| 34   | 1.878+04 |
| 35   | 2.085+04 |
| 36   | 2.296+04 |
| 37   | 2.511+04 |
| SUMMA=   | 7.939+04 |
| Z=   | 38       |
| 1s 2s 2p 3s 3p 3d 4s 4p 4d 4f 5s 5p 5d 5f 6s 6p 6d 7s 7p |          |
| 2 2 6 2 6 10 2 6 0 0 2 0 0 0 0 0 0 0 0                   |          |
| 1  | 6.940+00 |
| 2  | 1.102+01 |
| 3  | 4.365+01 |
| 4  | 5.495+01 |
| 5  | 6.698+01 |
| 6  | 7.974+01 |
| 7  | 9.323+01 |
| 8  | 1.074+02 |
| 9  | 1.651+02 |
| 10   | 2.263+02 |
| 11   | 2.911+02 |
| 12   | 3.595+02 |
| 13   | 4.315+02 |
| 14   | 5.071+02 |
| 15   | 5.863+02 |
| 16   | 6.691+02 |
| 17   | 7.555+02 |
| 18   | 8.455+02 |
| 19   | 9.391+02 |