Manual for txt2ens

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Introduction

txt2ens is a program that converts a text file in tabular form into ENSDF. This has been developed to speed the process of creating such files, especially for people with little or no experience with the ensdf format.

Usage

There are two ways to use the program. From a DOS window or unix terminal type "`txt2ens`". The program will then ask you for the input and output files. The second way to run the program is to give the files from the command line such as "`txt2ens 40ca.txt 40ca.ens`". Depending on the input there may be many warnings and errors displayed. If there are many warnings, they will not all show in a DOS window, you can save the input to file using a command like "`txt2ens 40ca.txt 40ca.ens > report.txt`".

Input

The first line of the input file must be the name of the nucleus, for example "40Ca". The second line must be the headers for the columns, the only header that has to be present is the level energy (Ei). The following lines contain the data for the nucleus. Leave blank any items that are unknown.

All uncertainties are input in brackets after the number, "`123.4(5)`" is read as 123.4 with an uncertainty of 5 on the last digit. Also uncertainties like 100(<) are accepted as less than 100; (∼) approximate, (>) greater than, (>=) greater than or equal to, and (<=) less than or equal to. For lifetimes the uncertainty has to be included *after* the units, such as "`12.4 ns(3)`".

Column Headers

Name	Description
EG	γ-ray energy
EI	Initial level energy
JI	Spin of initial level
IG	γ-ray intensity
TIME	Lifetime of level
MR	Mixing Ratio
MU	Multipolarity
DCO	Direction Correlation Orientation
A2	Angular distribution coefficient
A4	Angular distribution coefficient
POL	Polarity
EKC	K-shell electron capture ratio
ELC	L-shell electron capture ratio
EMC	M-shell electron capture ratio
BI	Band flag of initial energy level
FLAG	Items that go in column 80 such as "?" and "S"
COM	Comments, This must be the *last* column in the input

Simple Example

```
40ca
ei        eg         ji    ig    time          com
0                    0+
65.3(4)   65.1(3)    2+    100   14 ns(4)
122.4(3)  57.2(12)   4+    1(<)                unsure about placement
122.4(3)  122.6(2)   4+    100
// This is a comment line, it will not appear in the output file.
375.8(5)  253.5(3)   (6+)  100   19.0 kev(9)
```

This will produce the following output.

```
 40CA
 40CA  L 0            0+
 40CA  L 65.3      4  2+               14 NS     4
 40CA  G 65.1      3  100
 40CA  L 122.4     3  4+
 40CA  G 57.2      12 1      LT
 40CA cG $unsure about placement
 40CA  G 122.6     2  100
 40CA  L 375.8     5  (6+)             19.0 KEV  9
 40CA  G 253.5     3  100
```

Common Errors

• Ambiguous Levels

When creating several gammas for a particular level, you must make certain that *all* level reated fields are exactly the same. In the following example, there are two gammas from the same level, however the spin has brackets around the parity in one instance and none in the other. These are considered to be different levels.

```
ei        eg         ji    ig
122.4(3)  57.2(12)   4+    3(<=)
122.4(3)  122.6(2)   4(+)  100(2)
```

• Uncertainties

"`<432.1`" will cause problems, it should be written as "`432.1(<)`"

• Lifetime

The uncertainty on the lifetime must come *after* the units. A value of "`65(3) s`" should be written as "`65 s(3)`"

• Comments

If you are going to put comments in a file, the line must *start* with the comments

```
108in // This comment is invalid.
// This comment is OK.
```

Further Information

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