
Experience with EFF-3 Cross Section Processing Using ERRORR Module

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EFF-3 COVARIANCE MATRIX PROCESSING

- Recent EFF-3 covariance data include few non-standard MT numbers ($MT > 800$, e.g. in Be-9 MT 875-890, in Ni-58, Ni-60 and Fe-56 MT 851-854). Patches for NJOY-97 modules RECONR, ERRORR and COVR were prepared which allow to process these data. For NJOY-99 under testing.

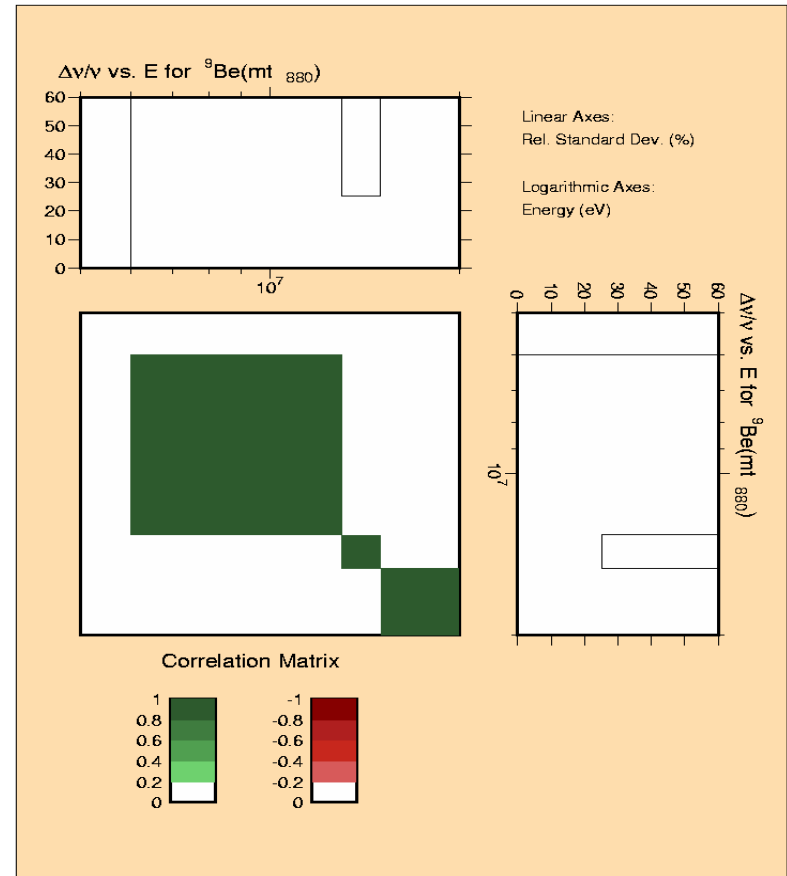
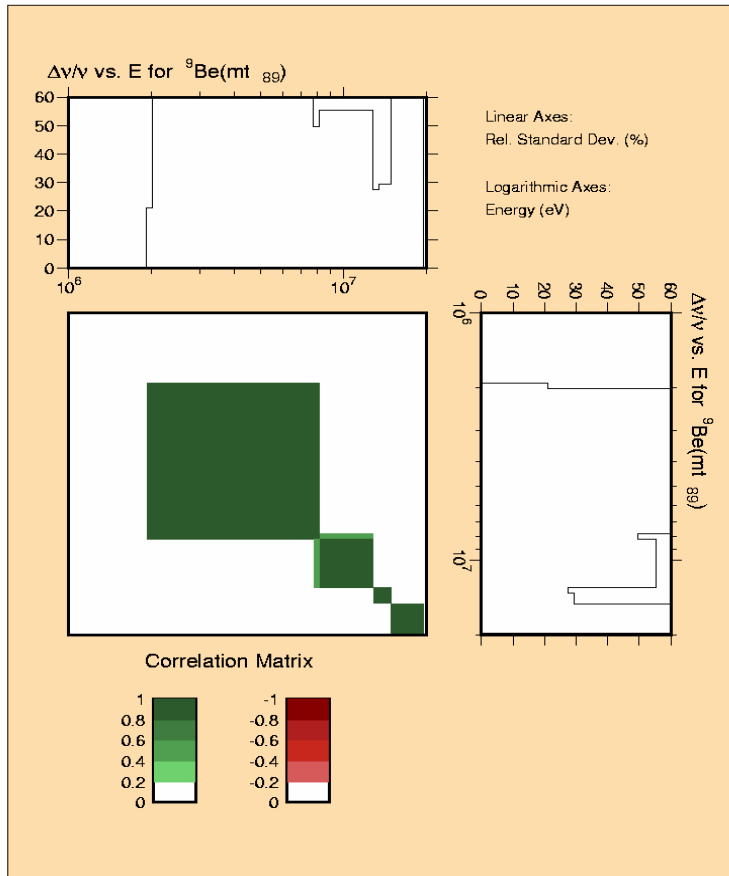
Updates for NJOY-97/ERRORR to fix for EFF-3 evaluation (MT 851-890 used)

```
• /* corrections NJOY97/errorr - i.kodeli, 20-oct-00
• /*   fix for be-9 eff3 evaluation (mt875-890 used)
• /* =====
• *ident ivo
• *d errorr.288
•     if (mt.gt.850.and.mt.lt.870) go to 121
•     if (mt.gt.890) call error('errorr','illegal mt gt 890.',' ')
• *d errorr.295
•     121 continue
• *i errorr.4172
•     if (mtd.ge.800.and.mtd.le.890) mt=mtd
• *d errorr.1002
•     if (mt1.lt.851.or.mt1.gt.870) go to 140
• *d errorr.1180
•     if (mt.gt.850.and.mt.lt.870) go to 190
• *d errorr.1259
•     if (mt1.lt.851.or.mt1.gt.870) then
•         call rdsig(mat1,mt1,a(ib),a(isig1))
• *d errorr.1260
•     else
•         call lumpxs(mt1,mt1,a)
•     endif
```

CONTINUED (Updates for NJOY-97/ERRORR)

- `*d errorr.2265`
- `if (mts(ix).lt.851.or.mts(ix).gt.870) go to 250`
- `*d reconr.1291`
- `if (mth.ge.850.and.mth.lt.870) go to 150`
- `if (mth.gt.890) go to 150`
- `*/ for be-9 eff3 evaluation (mt875-890 used): print mt875-890 on plots`
- `*/ alternative to the above`
- `*i covr.1497`
- `else if (ivl.lt.1000) then`
- `write(lnam, '(''#L.25H.75<'',i3,'#HXLX<')') ivl`
- `nnam=20`

Be-9: processed by modified NJOY-97 LB=8 omitted.



Comparison with ANGELO Processing

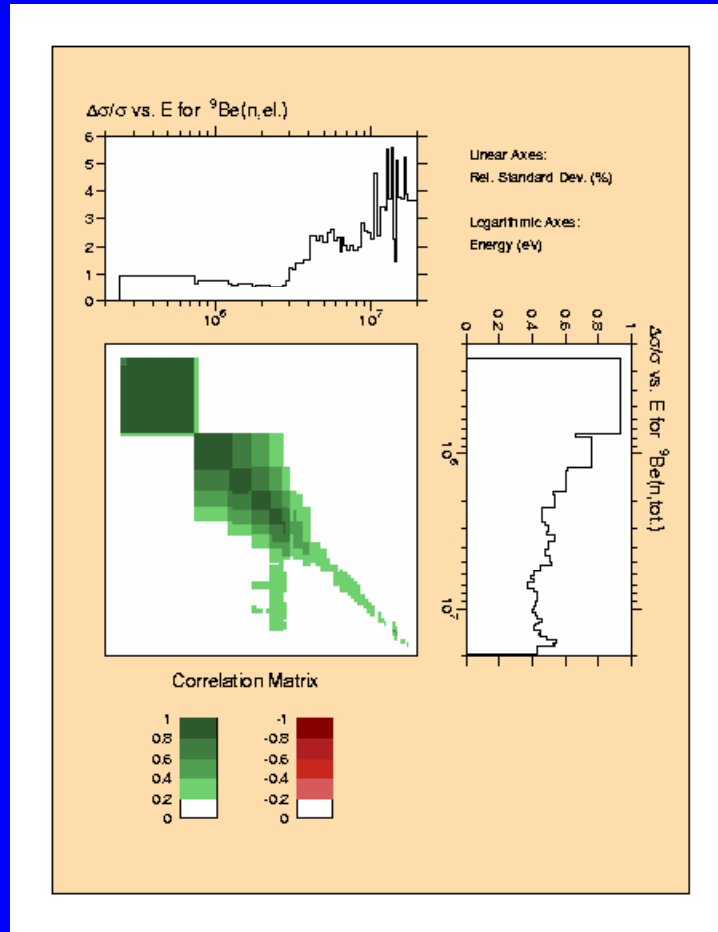
- EFF-3 cross section covariance matrices processed using the NJOY modules RECONR/BROADR/ERRORR/COVR and ANGELO (part of ZZ-VITAMIN-J/COVA package).
- Possible problem in ERRORR in case of covariance matrix processing for threshold reactions. ERRORR seems to unphysically reduce the standard deviation in the user energy group containing the threshold when the corresponding lower energy group boundary extends below the threshold energy (averaging problem?).

Comparison with ANGELO Processing

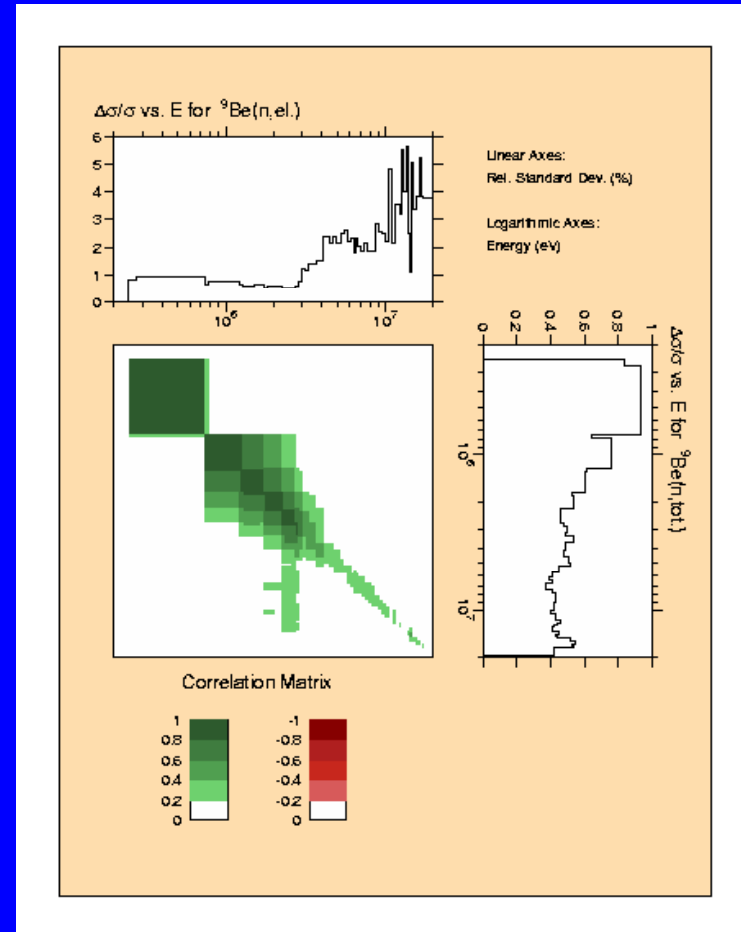
ANGELO:

- Requires covariance matrix library in BOXER format. Be-9 covariance matrices processed by NJOY to ENDF energy groups and stored in BOXER format. ANGELO used for conversion to VITAMIN-J 175 groups,
- Easy to use & fast, but no flux or cross-section weighting.

Be-9 covariance matrices processed into VITAMIN-J 175 groups by NJOY and ANGEL0 codes



ANGEL0: Evaluation \rightarrow 175 g



NJOY: 175 g (LB=8 suppressed)