Status of the ENDF/B-VII Library

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Contributors

- LANL
  - many new evaluations for neutron and charged particle induced reactions
  - resonance region by ORNL
  - include actinides and charged particles on light nuclei
  - non-actinides n- and p-evaluations up to 150 MeV using MT=5 representation
  - tested with NJOY

LANL

- many completely new evaluations for neutron and charged particle induced reactions
- resonance region by ORNL
- include actinides and charged particles on light nuclei
- non-actinides n- and p-evaluations up to 150 MeV using MT=5 representation
- tested with NJOY

Contributors (cont.)

- ORNL
  - resonance region
  - most evaluations in cooperation with LANL (high energy region)
  - a few purely ORNL evaluations use ENDF/B-VI.8 for the fast neutron energy region

Contributors (cont.)

- BNL/KAERI
  - new evaluations for neutron induced reactions on fission products
  - resonance part from the recent Mughabhab evaluation (ENDF/B-VI.8)
  - fast neutron energy region calculated with the EMPIRE-II code
  - some evaluations in need of format corrections
  - except 99-Tc, 153-Eu, and 157-Gd all evaluations should be tested with NJOY

Contributors (cont.)

- IAEA-CRP/LANL
  - 160 photonuclear evaluations
  - based on the results of the IAEA Coordinated Research Project
  - contributing Labs: LANL, KAERI, CJD, Begin
  - formatting corrected at LANL and tested with NJOY
  - minor problems (typo in the last incident energy) should be corrected for all isotopes of Zn, Zr, Sn, Te, Sb, Sm, and Tb

Statistics of submitted evaluations

- neutron evaluations: 30
- proton evaluations: 10
- deuteron evaluations: 5
- triton evaluations: 3
- He-3 evaluations 2
- photonuclear evaluations: 160
- **Total number of submitted evaluations: 210**

Submitted evaluations

- BNL/KAERI – neutron
  - 99-Tc, 153-Eu, 157-Gd (**3 evaluations**)
- ORNL – neutron
  - 19-F, 35,37-Cl, 241-Pu (**4 evaluations**)
- LANL/ORNL – neutron
  - 28-Si, 208-Pb, 232,233,234,235,238-U (**7 evaluations**)

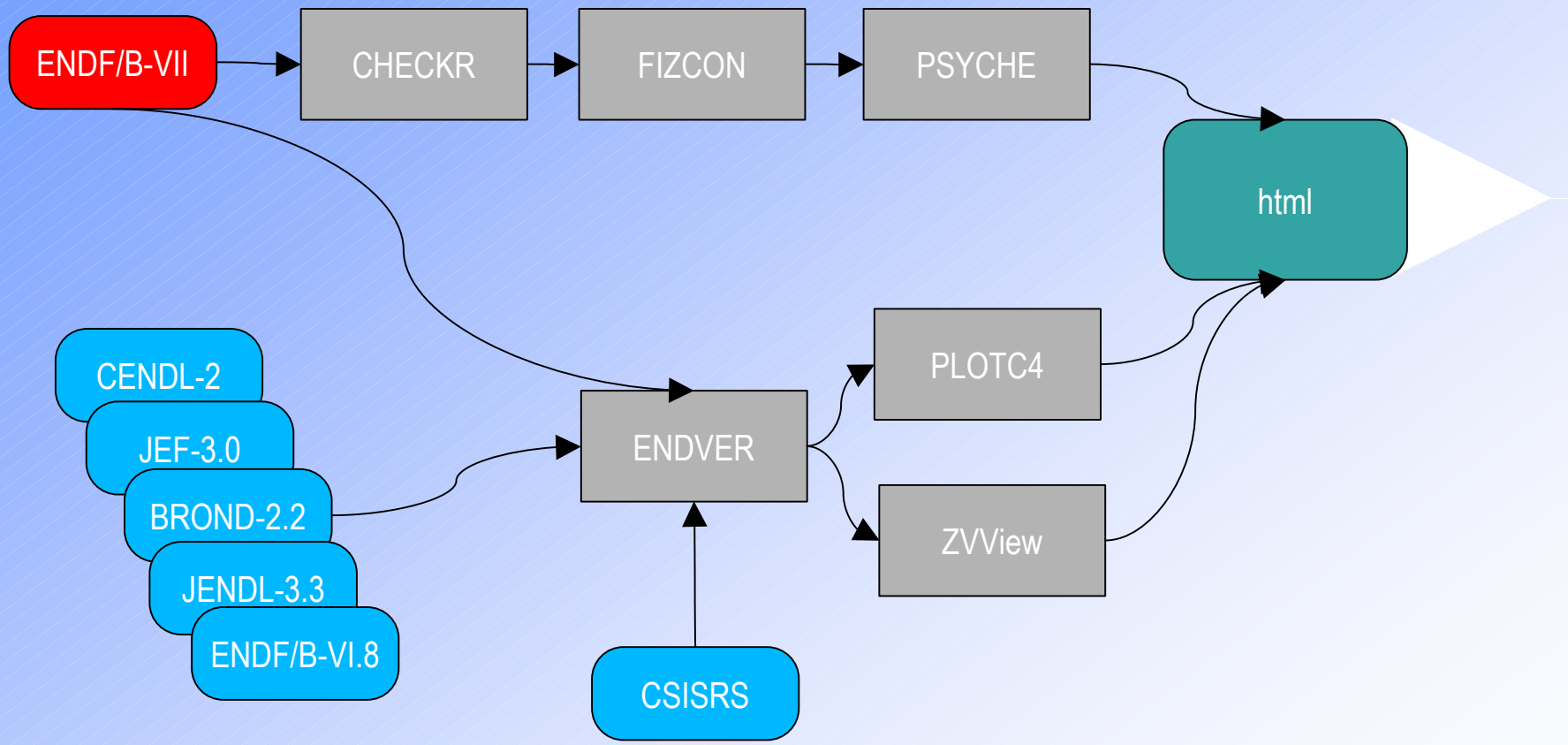
Submitted evaluations (cont.)

- LANL - neutrons
  - 27-Al, 196,198,199,200,201,202,204-Hg, 236,237,239,240,241-U, 237-Np, 239-Pu, 241-Am (**16 evaluations**)
- LANL - protons
  - 3-H, 6,7-Li, 196,198,199,200,201,202,204-Hg (**10 evaluations**)
- LANL – deuterons
  - 2,3-H, 3-He, 6,7-Li (**5 evaluations**)
- LANL – tritons
  - 3-H, 3-He, 6-Li (**3 evaluations**)
- LANL – 3-He
  - 3-He, 6-Li (**2 evaluations**)

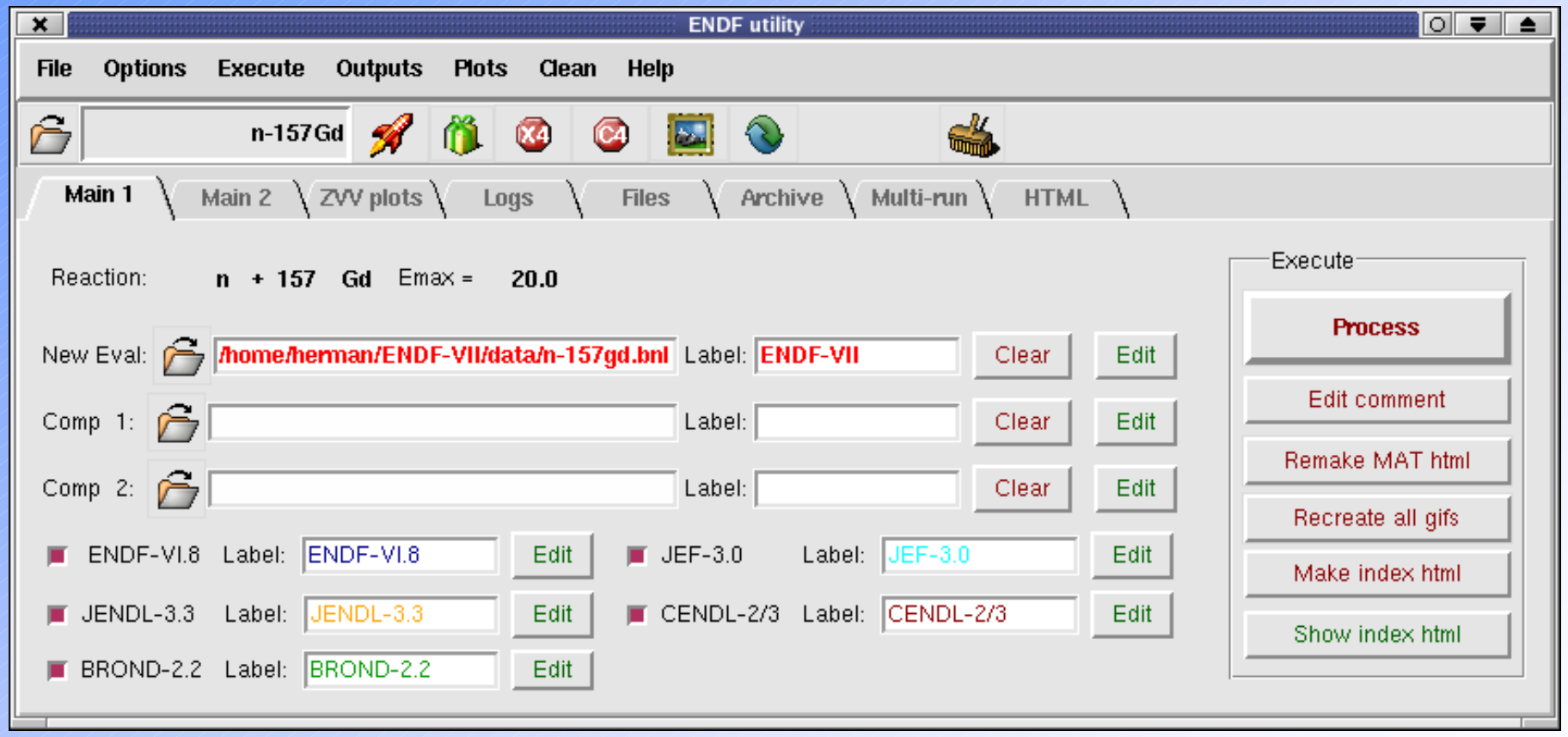
Expected evaluations

- BNL/KAERI- neutrons
  - 95-Mo, 105-Pd, 109-Ag, 131-Xe, 133-Cs, 143,145-Nd, 150,151,152-Sm, 155-Gd (**11 evaluations**) – completed, need format corrections, no impact on comparison plots
  - 101-Ru, 103-Rh, 141-Pr, 147,149-Sm (**5 evaluations**) – completed, need reformatting, no impact on comparison plots
- BNL - neutrons
  - 70,72,73,74,76-Ge (**5 evaluations**)
- LANL – neutrons
  - 240,242,242m,243-Am isotopes (**4 evaluations**)

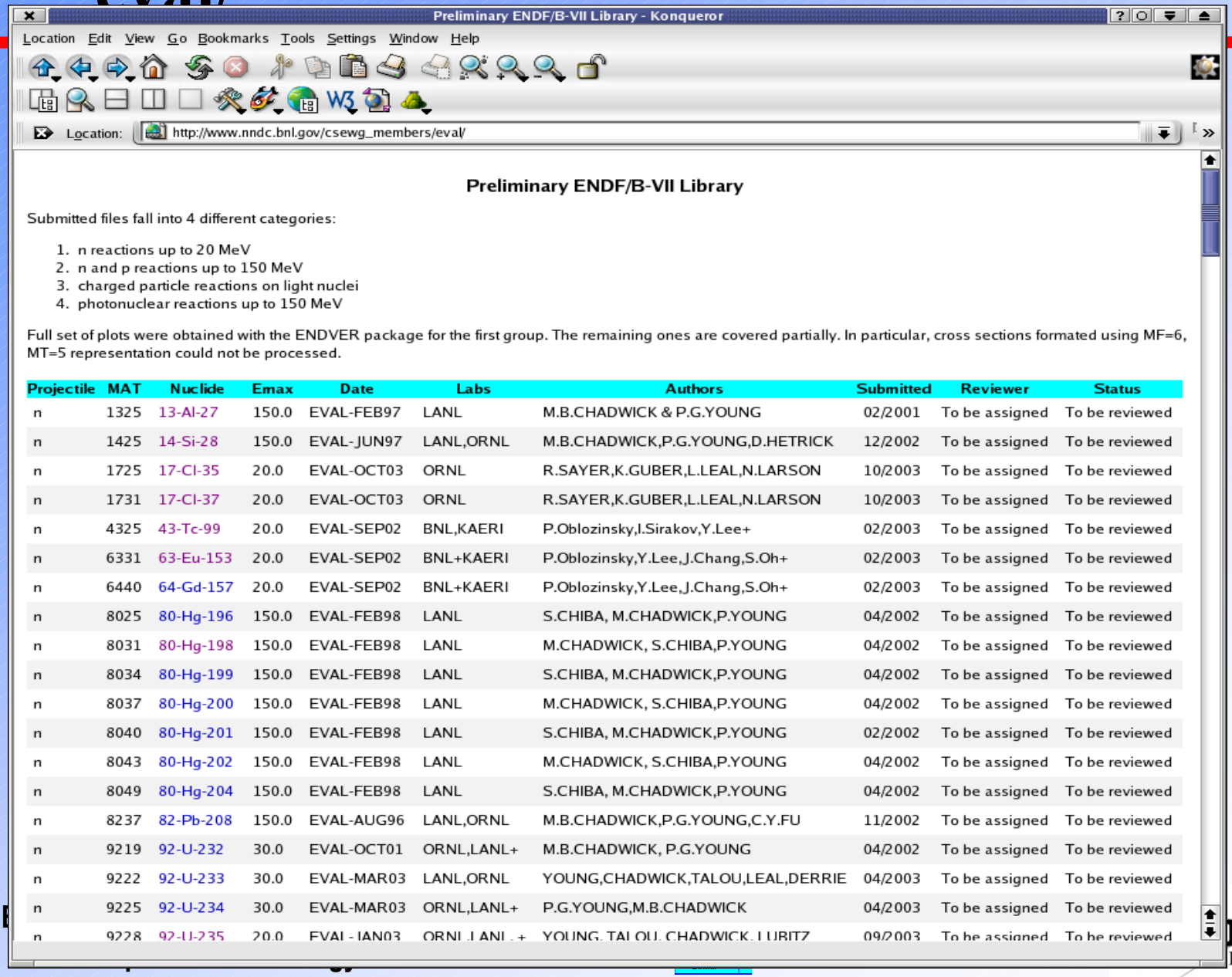
ENDF/B-VII management (flowchart)



ENDF/B-VII management (GUI)



http://www.nndc.bnl.gov/csewg_members/eval/



Preliminary ENDF/B-VII Library

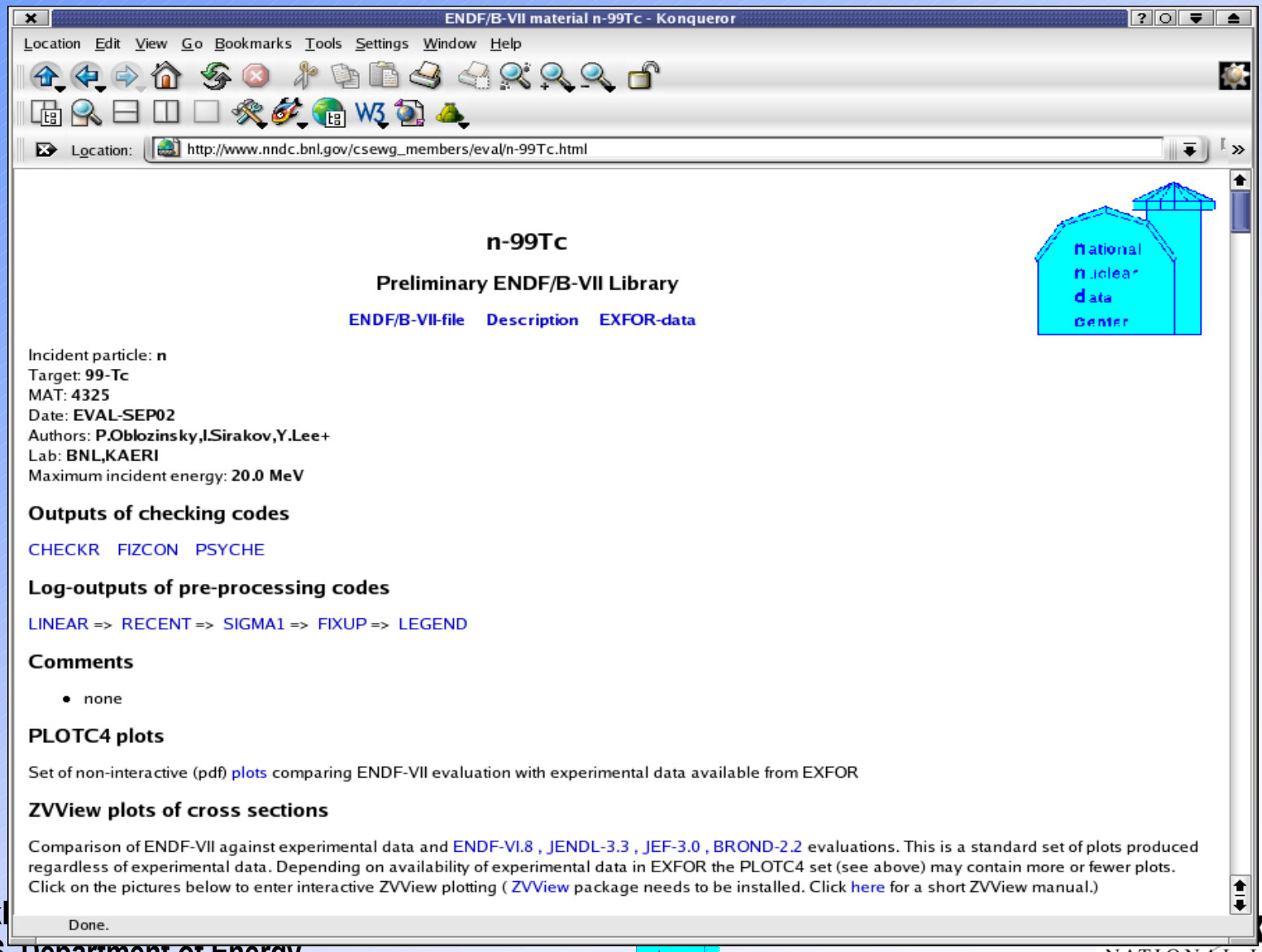
Submitted files fall into 4 different categories:

1. n reactions up to 20 MeV
2. n and p reactions up to 150 MeV
3. charged particle reactions on light nuclei
4. photonuclear reactions up to 150 MeV

Full set of plots were obtained with the ENDVER package for the first group. The remaining ones are covered partially. In particular, cross sections formated using MF=6, MT=5 representation could not be processed.

Projectile	MAT	Nuclide	Emax	Date	Labs	Authors	Submitted	Reviewer	Status
n	1325	13-Al-27	150.0	EVAL-FEB97	LANL	M.B.CHADWICK & P.G.YOUNG	02/2001	To be assigned	To be reviewed
n	1425	14-Si-28	150.0	EVAL-JUN97	LANL,ORNL	M.B.CHADWICK,P.G.YOUNG,D.HETRICK	12/2002	To be assigned	To be reviewed
n	1725	17-Cl-35	20.0	EVAL-OCT03	ORNL	R.SAYER,K.GUBER,L.LEAL,N.LARSON	10/2003	To be assigned	To be reviewed
n	1731	17-Cl-37	20.0	EVAL-OCT03	ORNL	R.SAYER,K.GUBER,L.LEAL,N.LARSON	10/2003	To be assigned	To be reviewed
n	4325	43-Tc-99	20.0	EVAL-SEP02	BNL,KAERI	P.Oblozinsky,I.Sirakov,Y.Lee+	02/2003	To be assigned	To be reviewed
n	6331	63-Eu-153	20.0	EVAL-SEP02	BNL+KAERI	P.Oblozinsky,Y.Lee,J.Chang,S.Oh+	02/2003	To be assigned	To be reviewed
n	6440	64-Gd-157	20.0	EVAL-SEP02	BNL+KAERI	P.Oblozinsky,Y.Lee,J.Chang,S.Oh+	02/2003	To be assigned	To be reviewed
n	8025	80-Hg-196	150.0	EVAL-FEB98	LANL	S.CHIBA, M.CHADWICK,P.YOUNG	04/2002	To be assigned	To be reviewed
n	8031	80-Hg-198	150.0	EVAL-FEB98	LANL	M.CHADWICK, S.CHIBA,P.YOUNG	04/2002	To be assigned	To be reviewed
n	8034	80-Hg-199	150.0	EVAL-FEB98	LANL	S.CHIBA, M.CHADWICK,P.YOUNG	04/2002	To be assigned	To be reviewed
n	8037	80-Hg-200	150.0	EVAL-FEB98	LANL	M.CHADWICK, S.CHIBA,P.YOUNG	04/2002	To be assigned	To be reviewed
n	8040	80-Hg-201	150.0	EVAL-FEB98	LANL	S.CHIBA, M.CHADWICK,P.YOUNG	02/2002	To be assigned	To be reviewed
n	8043	80-Hg-202	150.0	EVAL-FEB98	LANL	M.CHADWICK, S.CHIBA,P.YOUNG	04/2002	To be assigned	To be reviewed
n	8049	80-Hg-204	150.0	EVAL-FEB98	LANL	S.CHIBA, M.CHADWICK,P.YOUNG	04/2002	To be assigned	To be reviewed
n	8237	82-Pb-208	150.0	EVAL-AUG96	LANL,ORNL	M.B.CHADWICK,P.G.YOUNG,C.Y.FU	11/2002	To be assigned	To be reviewed
n	9219	92-U-232	30.0	EVAL-OCT01	ORNL,LANL+	M.B.CHADWICK, P.G.YOUNG	04/2002	To be assigned	To be reviewed
n	9222	92-U-233	30.0	EVAL-MAR03	LANL,ORNL	YOUNG,CHADWICK,TALOU,LEAL,DERRIE	04/2003	To be assigned	To be reviewed
n	9225	92-U-234	30.0	EVAL-MAR03	ORNL,LANL+	P.G.YOUNG,M.B.CHADWICK	04/2003	To be assigned	To be reviewed
n	9228	92-U-235	20.0	EVAL-JAN03	ORNL,LANL+	YOUNG, TALOU, CHADWICK, LUBITZ	09/2003	To be assigned	To be reviewed

Reviewer kit



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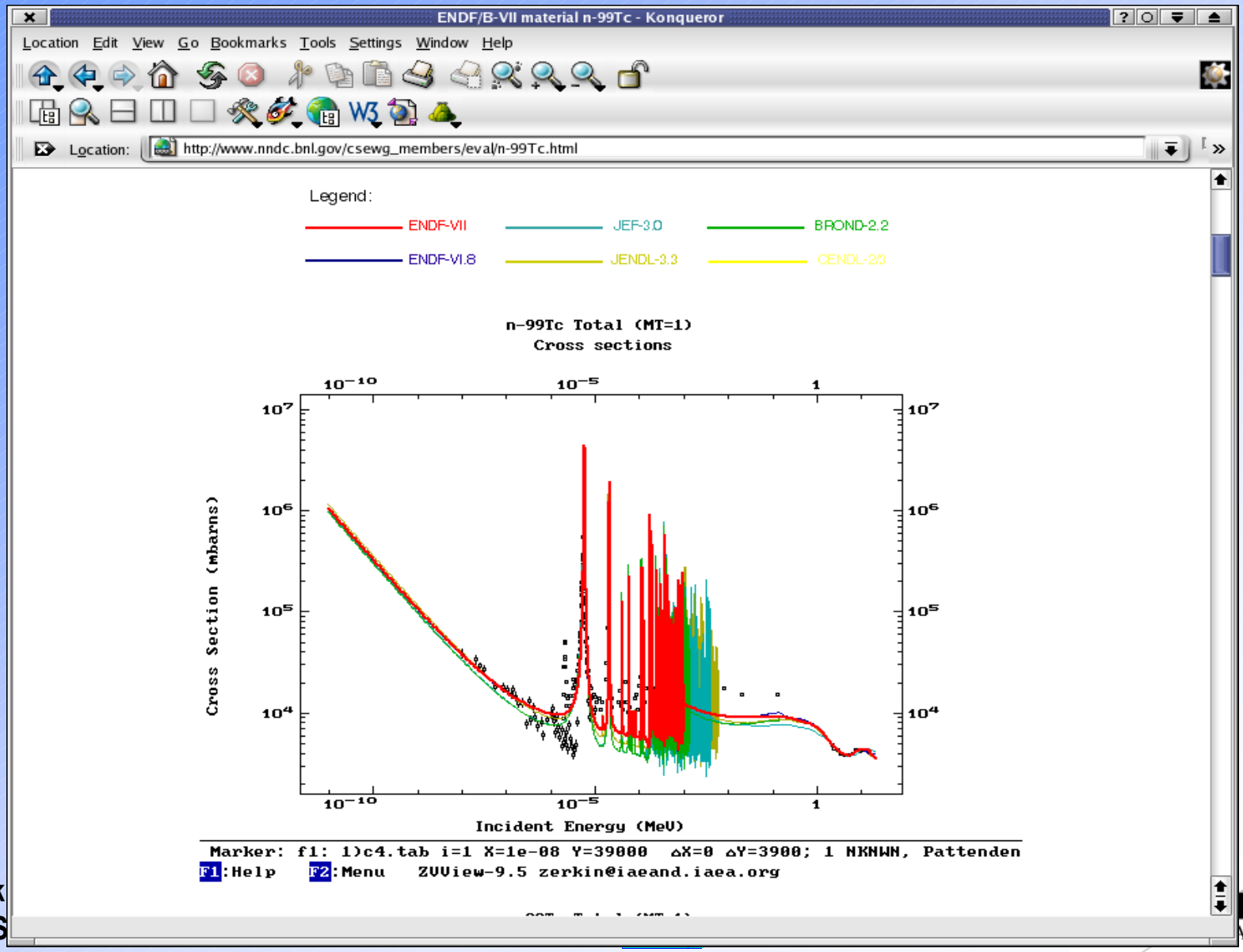

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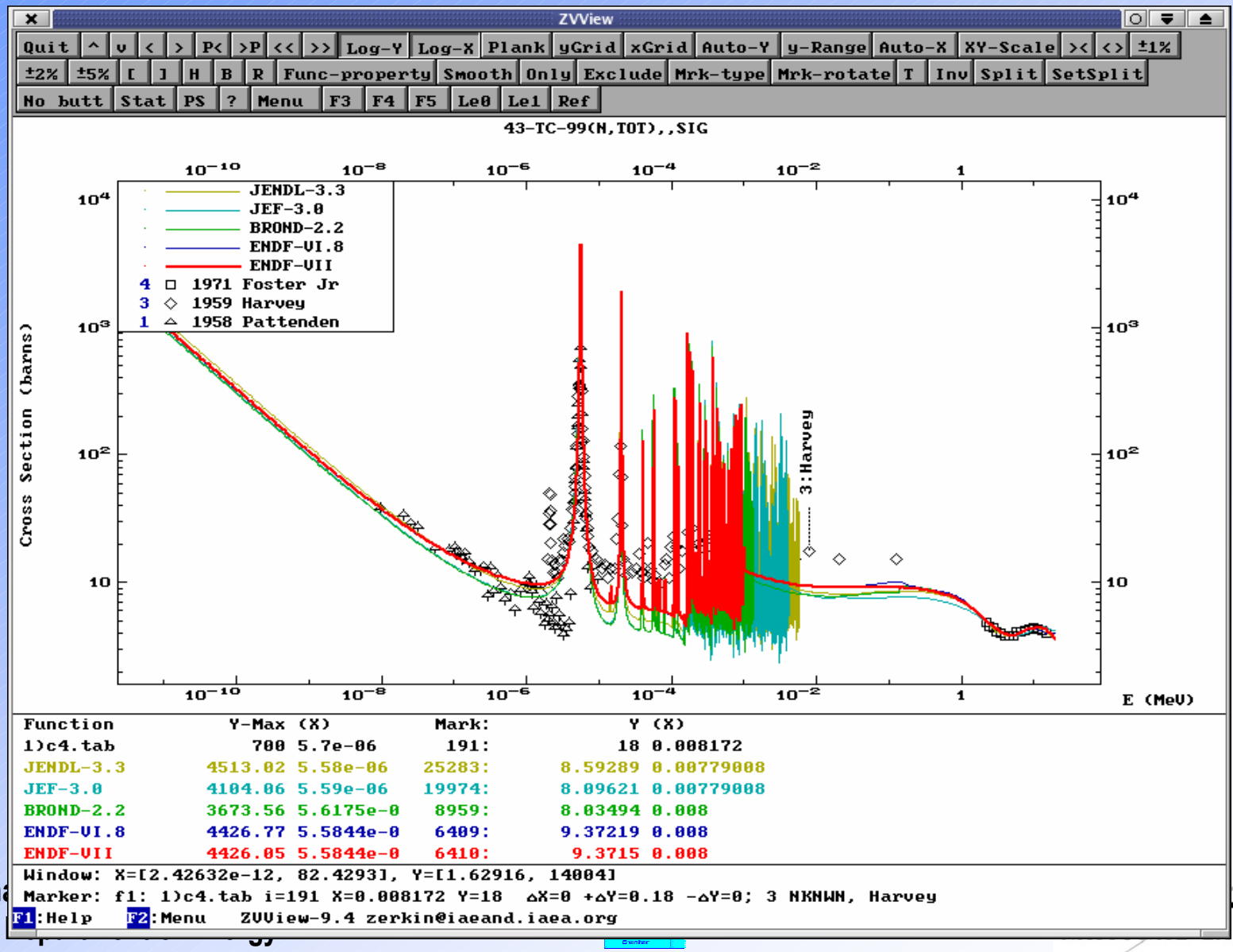
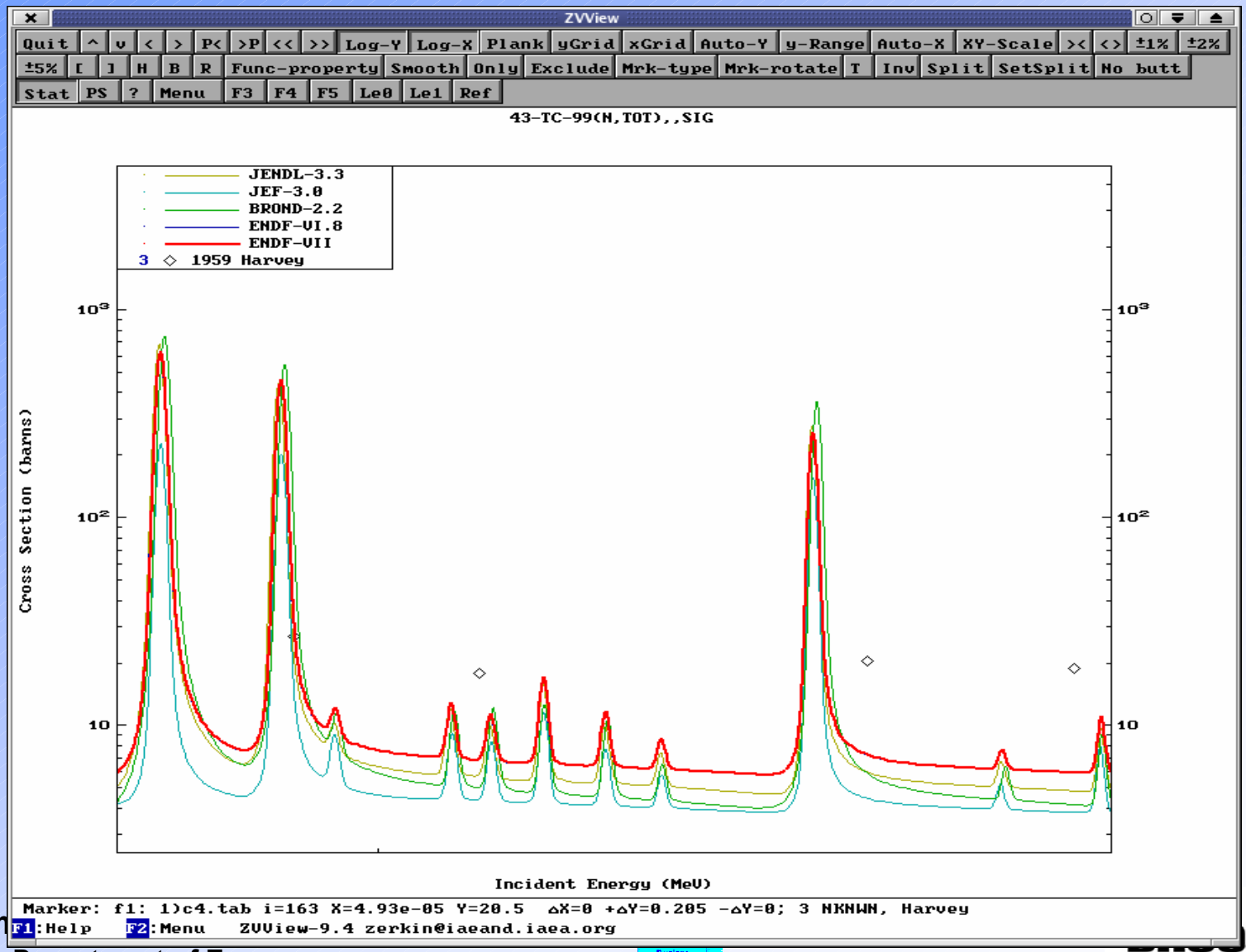


Reviewer kit (cont.)



Limitations of the reviewing system

- cross sections formated using MF=6, MT=5 representation can not be plotted
- selection of plots in the standard set suitable for n-induced reactions up to 20 MeV – could be manually adjusted for other evaluations
- not all experimental results for spectra and angular distributions are plotted with ZVView – additional plots could be added