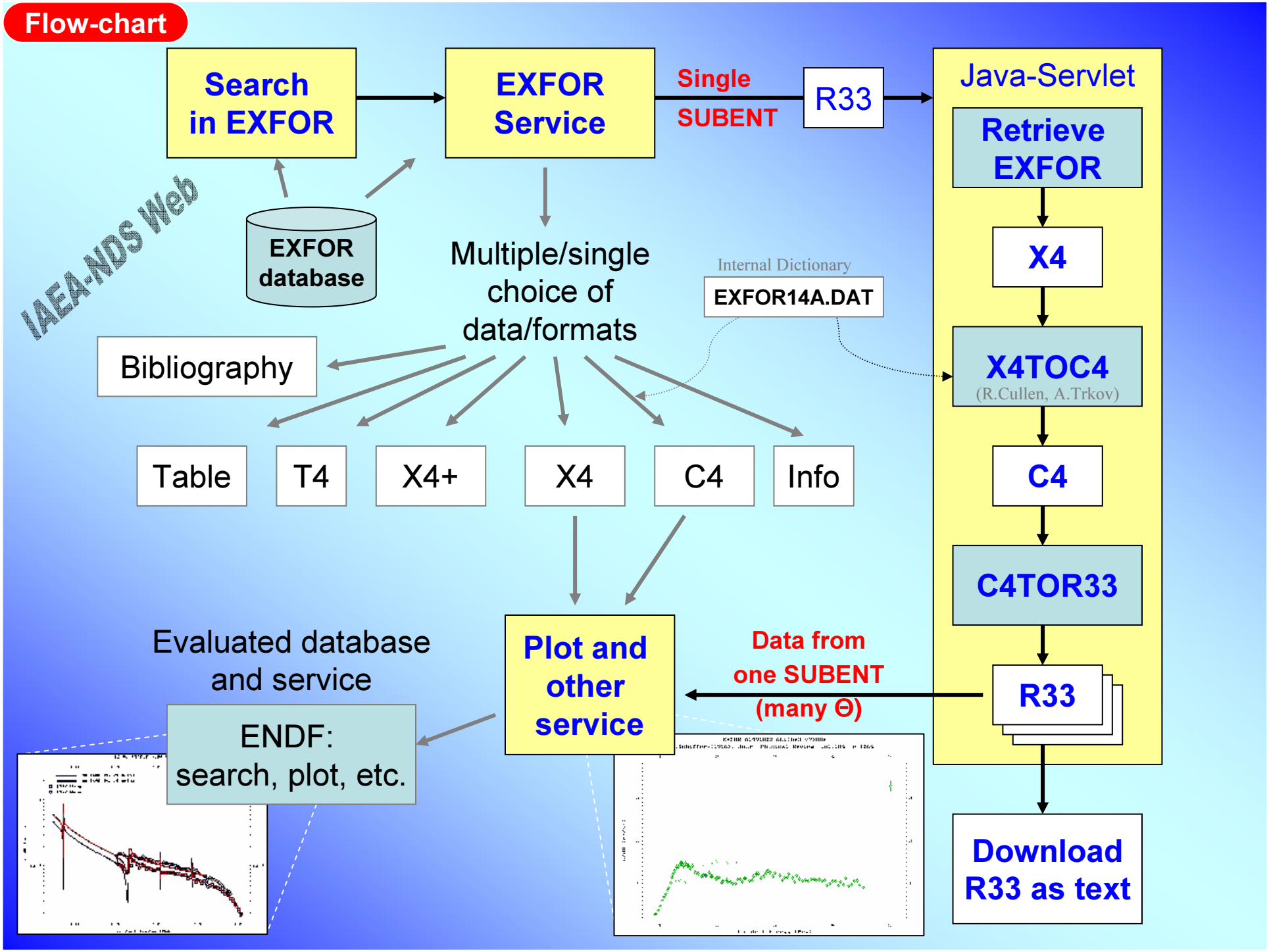
"EXFOR to R33" on NDS Web

V.Zerkin, IAEA-NDS

Second Research Co-ordination Meeting on
Development of a Reference Database for Ion Beam Analysis
IAEA Headquarters, Vienna, Austria
18-21 June 2007


Flow-chart
Search in EXFOR
EXFOR Service
Single SUBENT
R33
Java-Servlet
Retrieve EXFOR
X4
X4TOC4
(R.Cullen, A.Trkov)
C4
C4TOR33
R33
Download R33 as text
IAEA-NDS Web
EXFOR database
Multiple/single choice of data/formats
Internal Dictionary
EXFOR14A.DAT
Bibliography
Table
T4
X4+
X4
C4
Info
Evaluated database and service
ENDF: search, plot, etc.
Plot and other service
Data from one SUBENT (many Θ)

EXFOR Request

EXFOR/CSISRS: Experimental Nuclear Reaction Data - Microsoft Internet Explorer provided by IAEA

File Edit View Favorites Tools Help

Back Search Favorites

Address http://nds121.iaea.org/exfor/exfor00.htm Go Links

Experimental Nuclear Reaction Data (EXFOR)

NNDC

Database Version of June 15, 2007

News

2007/05 Output in R33-IBANDL format: angular distributions; includes plotting
2007/03 Interactive Web plotting: zoom by mouse, actions by one click, more functions...
2007/01 Improved request page of Web interface (dark non-active criteria, move focus...)
2006/10 EXFOR+ Extended EXFOR [example] [about]
2006/10 BibTeX Bibliography for LaTeX [example] [about]
[History]

The EXFOR library contains an extensive compilation of experimental nuclear reaction data. Neutron reactions have been compiled systematically since the discovery of the neutron, while charged particle and photon reactions have been covered less extensively.
The library contains data from 16432 experiments.

Standard Request (example); Requests: Extended Advanced

Submit Reset

Target li-6
Reaction he3,p
Product
Quantity da*
Energy from to eV
Author(s)
Publication year
Accession #

1

Submit Reset

2

Options

Exclude superseded data
No reaction combinations (ratios,..)
Sort by:
Reaction
Accession# (Entry#, Subent#)

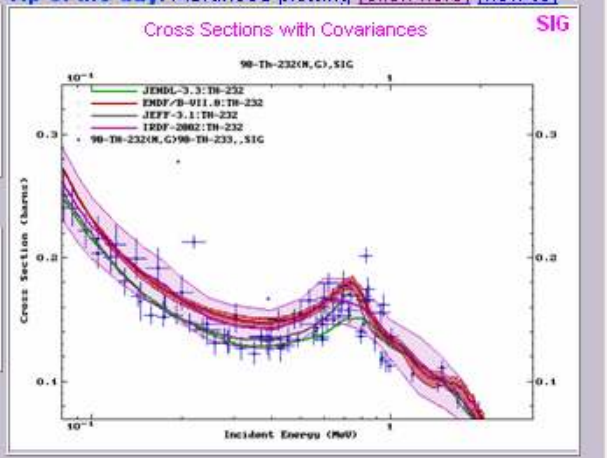
Feedback and User's Input

Comments/Questions?
Found error in data? Send message to debug
Submit your experimental data for input to the database

Clone Request:

CINDA ENDF

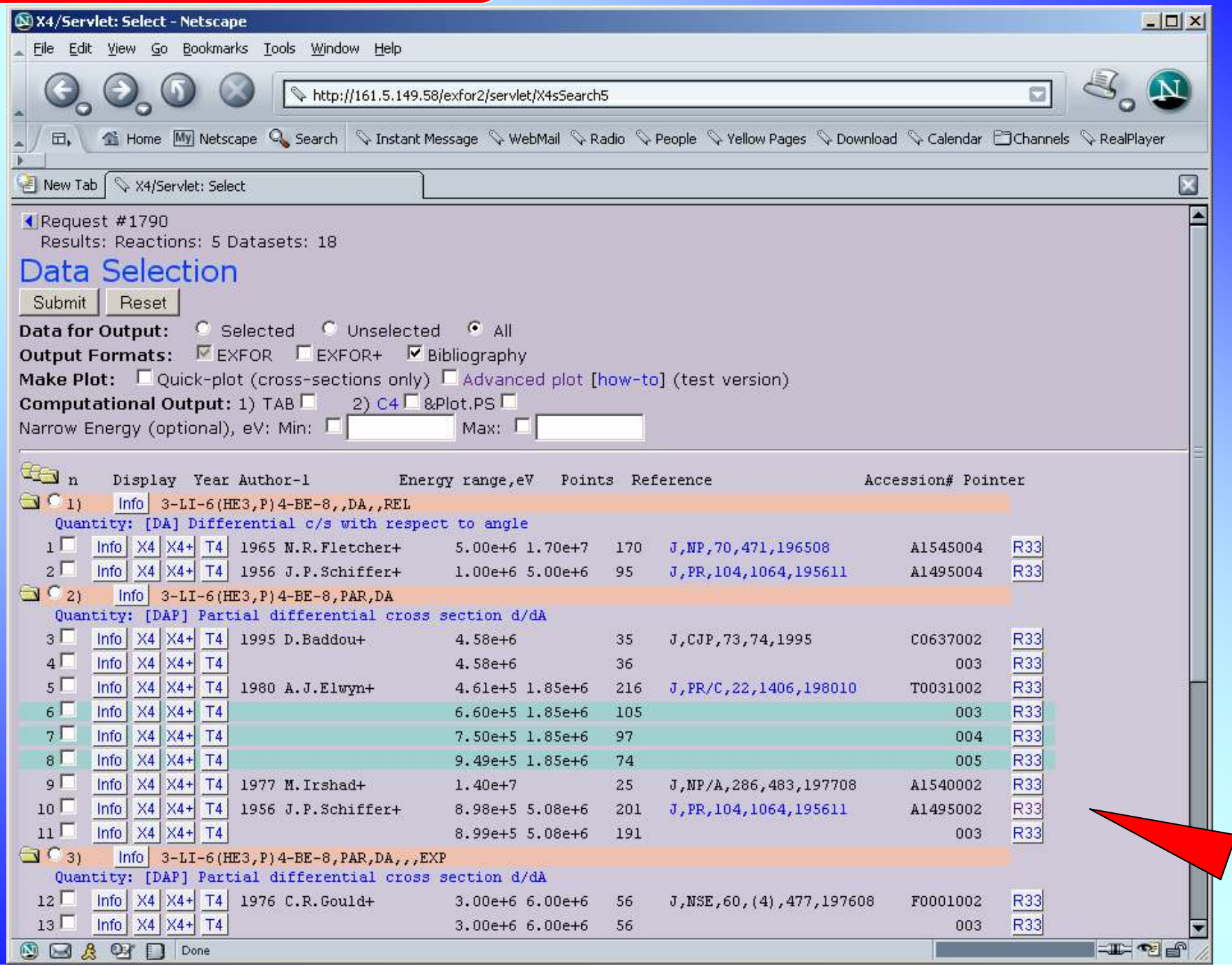
Tip of the day: Advanced plotting [click here] [how-to]



Note:
- all criteria are optional (selected by checking ☑)
- selected criteria are combined for search with logical AND
- criteria separated in a field by ";" are combined with logical OR
- wildcards and intervals are available

Create Window: Clone_EXFOR_CINDA_117106250825378226 Local intranet

EXFOR Data/Service Selection



R33 output

IAEA:X4-R33 - Netscape

File Edit View Go Bookmarks Tools Window Help

http://161.5.149.58/exfor2/servlet/X4sGetR33?reqx=17908subID=101495002&pointer=

Home Netscape Search Instant Message WebMail Radio People Yellow Pages Download Calendar Channels RealPlayer

New Tab | IAEA:X4-R33

```
          See Plots:  DA(E):2/2 DA(A):16/199
          Thetas:
            1) 0.0      2) 150.0
```

```
Comment:    Automatically converted from EXFOR via C4
            by IAEA-NDS EXFOR Web-Retrieval System.
            Software by V.Zerkin (IAEA, Vienna): version of 18-May-2007.
            "Study of the reaction mechanism for (He3,P) reactions
             with Li-6,B-10 and C-13"
            J.P.Schiffer, T.W.Bonner, R.H.Davis,
            F.W.Prosser, Jr.
            EXFOR:[A1495002 ]; X4Reaction:3-LI-6(HE3,P)4-BE-8,PAR,DA; X4Points:201

Version:      R33?
X4Number:     A1495002 20040301
Source:       J.P.Schiffer+(1956), Jour. Physical Review, Vol.104, p.1064
Reaction:     6Li(he3,p?)8Be
              LevelEnergy:  0.00
Distribution: Energy
Units:        mb
Composition:
Masses:       3.0, 6.0, 1.0, 8.0
Zeds:         2, 3, 1, 4
Qvalue:       0.00, 0.00, 0.00, 0.00, 0.00
Theta:        0.0
Data:
  903.20,     6.00,   0.2869,   0.0115
  926.60,     6.00,    0.303,   0.0121
  963.80,     6.00,   0.3805,   0.0152
 1001.00,     6.00,   0.4884,   0.0195
 1033.00,     6.00,   0.6113,   0.0245
 1061.00,     6.00,   0.6884,   0.0275
 1093.00,     6.00,   0.7657,   0.0306
 1130.00,     6.00,   0.8583,   0.0343
 1144.00,     6.00,   0.9045,   0.0362
 1181.00,     6.00,    1.028,   0.0411
 1204.00,     6.00,     1.15,    0.046
```

Done

R33 (almost…)

- ? Q-value
- ? Energy-Level

R33 Plot

Netscape

File Edit View Go Bookmarks Tools Window Help

http://161.5.149.58/exfor2/servlet/X4sZvd?file=X4R1790_tdat.c40&MF=4&flagDA_E=1

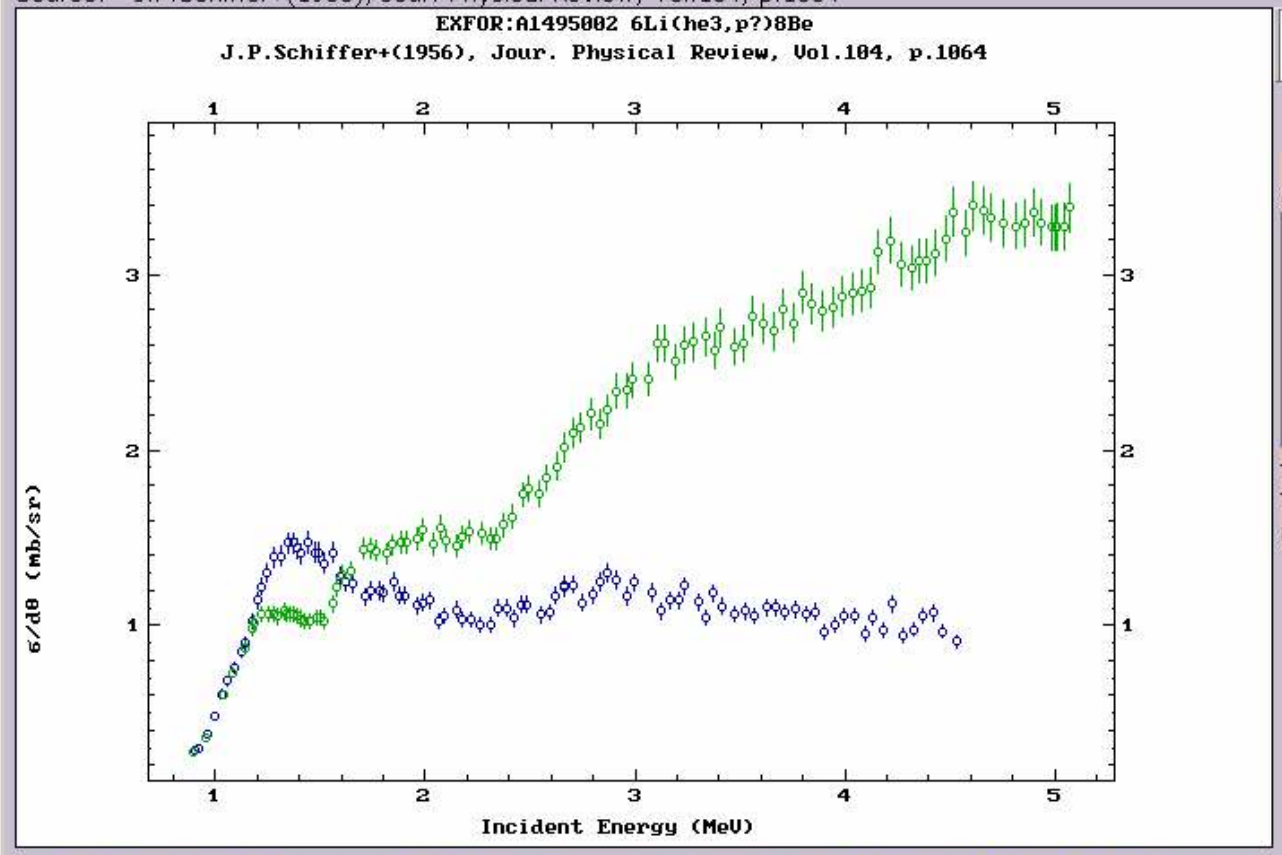
New Tab | http://161.5.149.5...40&MF=4&flagDA_E=1

Data converted from EXFOR to R33/IBANDL

EXFOR: A1495002+; Reaction: 3-LI-6(HE3,P)4-BE-8,PAR,DA

Reaction: ^{6}Li(he3,p?)^{8}Be

Source: J.P.Schiffer+(1956), Jour. Physical Review, Vol.104, p.1064



1) 6Li(he3,p?)8Be AN=0 LV=0

2) 6Li(he3,p?)8Be AN=150 LV=0

See: plotted data (12Kb)

Use My Data [example]

Columns: x y [dy [dx]]

Type: Curve Points

Title: My Data

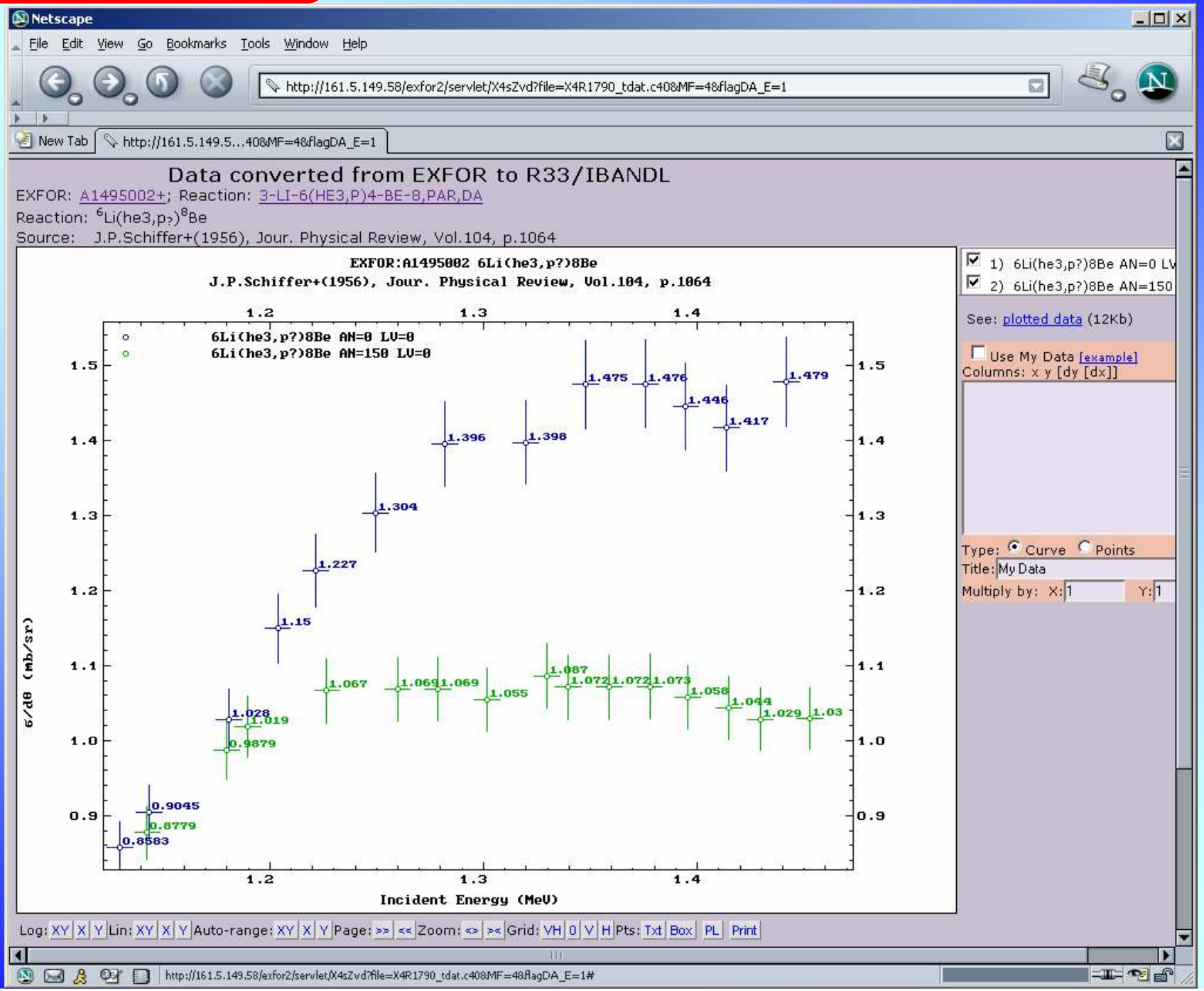
Multiply by: X: 1 Y: 1

Log: XY X Y Lin: XY X Y Auto-range: XY X Y Page: >> << Zoom: <> >< Grid: VH 0 V H Pts: Txt Box PL Print

Reset Repaint Legend Authors Manual plotting options:[+]

...outZoom: x=117 y=171 w=444 h=317

R33 Plot Interactions



EXFOR+

EXFOR-Interpreted, IAEA-NDS, 2006 - Netscape

File Edit View Go Bookmarks Tools Window Help

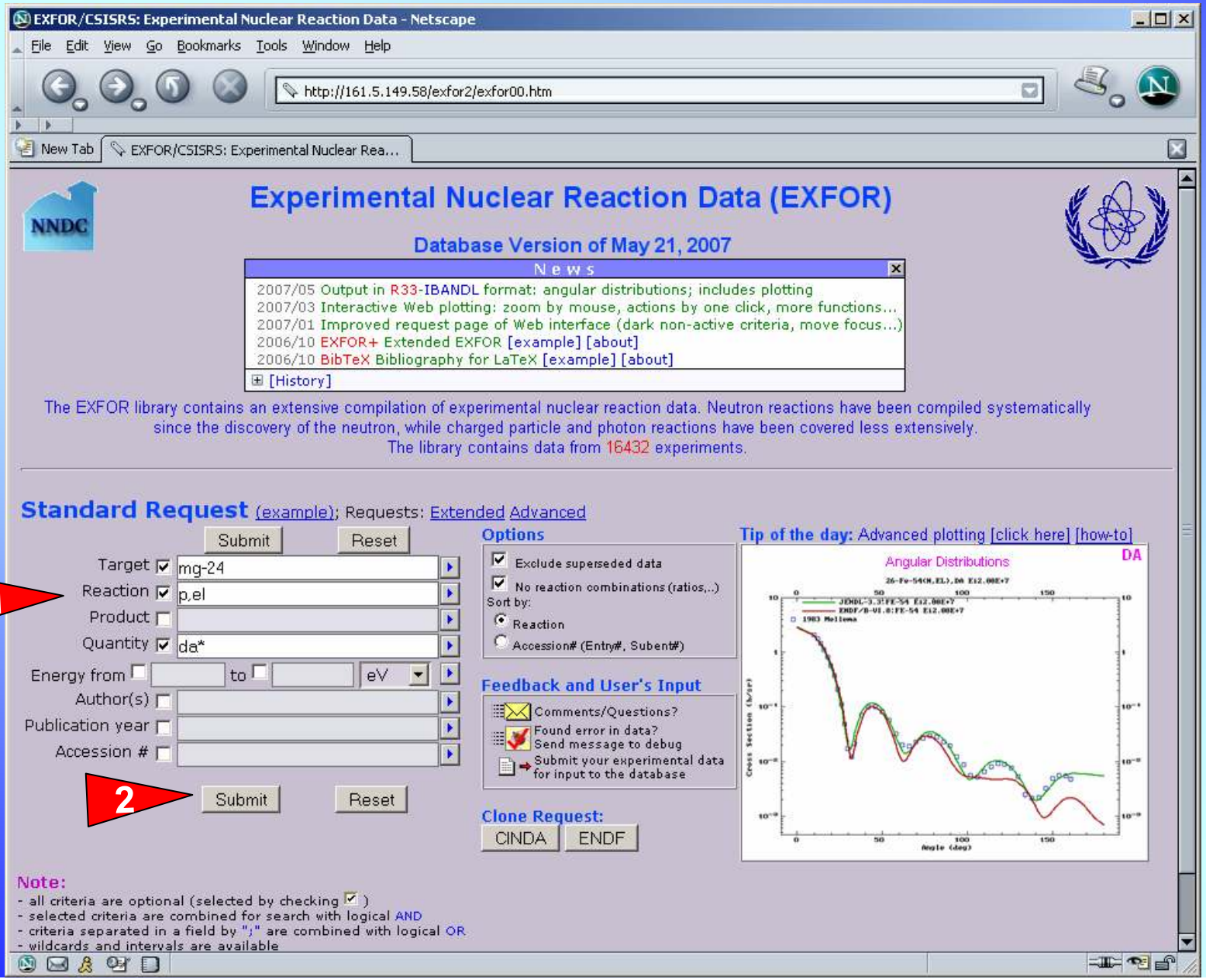
New Tab | EXFOR-Interpreted, IAEA-NDS, 2006

```
TITLE       Study of the reaction mechanism for (He3,P) reactions
            with Li-6,B-10 and C-13
AUTHOR      (J.P.Schiffer,T.W.Bonner,R.H.Davis,F.W.Prosser,Jr.)
INSTITUTE   (1USARIC)
            #(1USARIC) Rice University, Houston, TX, USA
REFERENCE   (J,PR,104,1064,195611)
            # (J,PR,104,1064,195611) Journ.: Physical Review, Vol.104, p.1064 (1956) USA
            #+      #NSR=1956SC01 #DOI=10.1103/PhysRev.104.1064
FACILITY    (VDG)
            #(VDG) Van de Graaff
SAMPLE      Target materials were evaporated on 2-mil foil backing,
            thick enough to stop the He-3 beam yet thin compared
            to the range of the proton groups studied
METHOD      (PHD)
            #(PHD) Pulse-height discrimination
DETECTOR    (SCIN) Thallium-activated CsI crystals mounted on
             DuMont 6291 photomultiplier tubes.
            #(SCIN) Scintillation detector
ERR-ANALYS  (DATA-ERR2)The pulse-height resolution of the detectors
HISTORY     (19800811C) Compilation produced by Arzamas RFNC-VNIIEF
            (20031013U) Last checking has been done.
ENDBIB                15
COMMON                 1           3
DATA-ERR2
PER-CENT
4.
ENDCOMMON              3
ENDSUBENT             22
SUBENT          A1495002    20031013    20040322    20050926         0000
BIB                    5          11
REACTION    (3-LI-6(HE3,P)4-BE-8,PAR,DA)
            #(3-LI-6(HE3,P)4-BE-8,PAR,DA)  Quantity: [DAP] Partial differential cross section d/dA
SAMPLE      Metallic Li-6 enriched to 96%. 10 microg/cm2 thick.
ERR-ANALYS  (EN-ERR) Digitizing error
            (DATA-ERR) Digitizing error
            (DATA-ERR1) Some uncertainty in the cross-section was
            introduced by not knowning precisely what fraction of
            the pulses to attribute to the 2.9-MeV state and what
            fraction to the continuum together with other
            uncertainties in target thickness and geometry.
EN-SEC      (E-LVL,4-BE-8)
STATUS      (CURVE) Fig 1 down
ENDBIB                11
COMMON                 4           3
E-LVL       EN-ERR      DATA-ERR1   DATA-ERR
MEV         MEV         PER-CENT    MB/SR
0.          0.006       20.         0.014
ENDCOMMON              3
DATA                   3         201
EN          ANG         DATA
MEV         ADEG        MB/SR
0.8982      150.        0.2792
0.9032      0.          0.2869
0.9266      0.          0.303
0.9588      150.        0.3591
0.9638      0.          0.3805
1.001       0.          0.4884
1.033       0.          0.6113
1.042       150.        0.6104
```

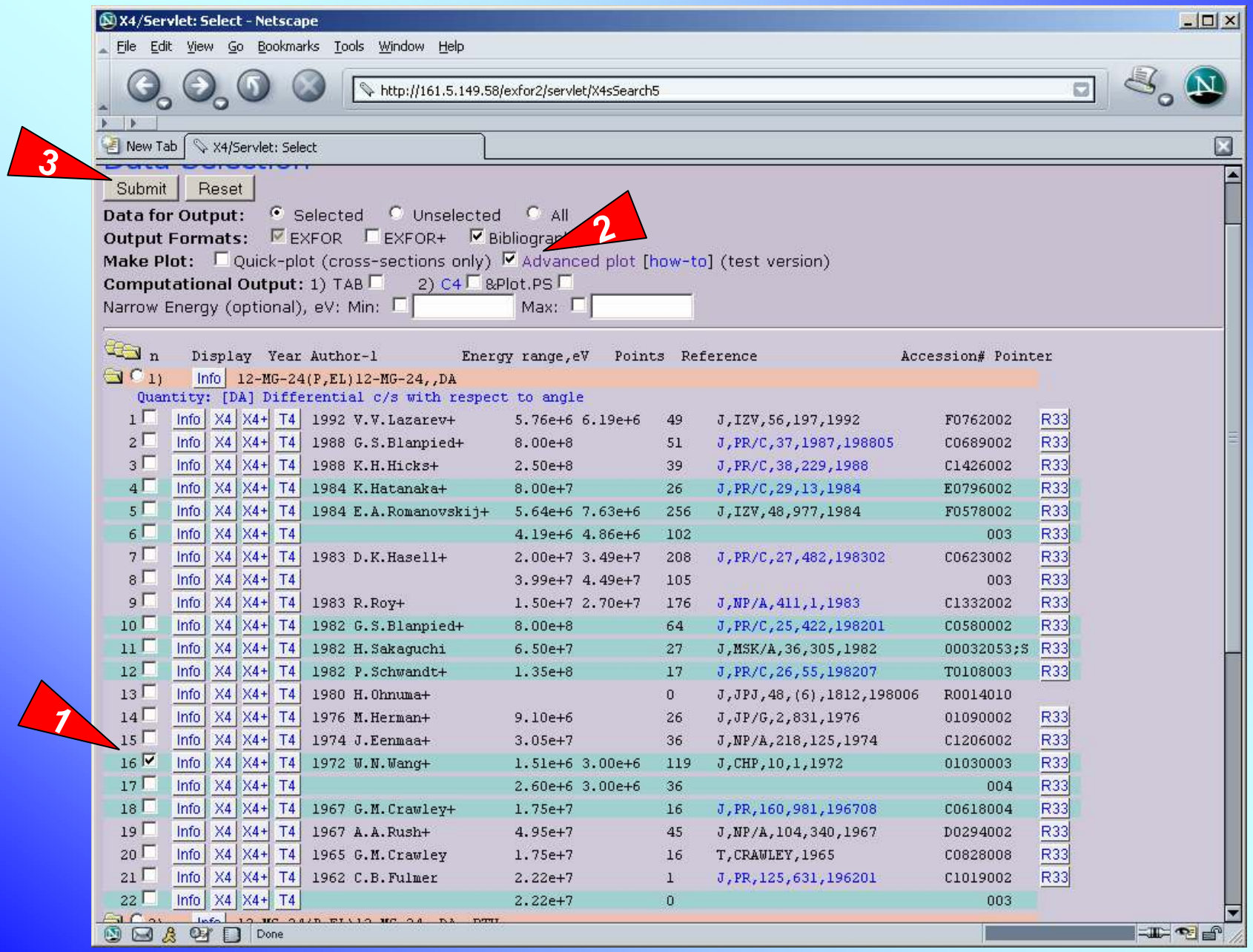
Done

Extended service

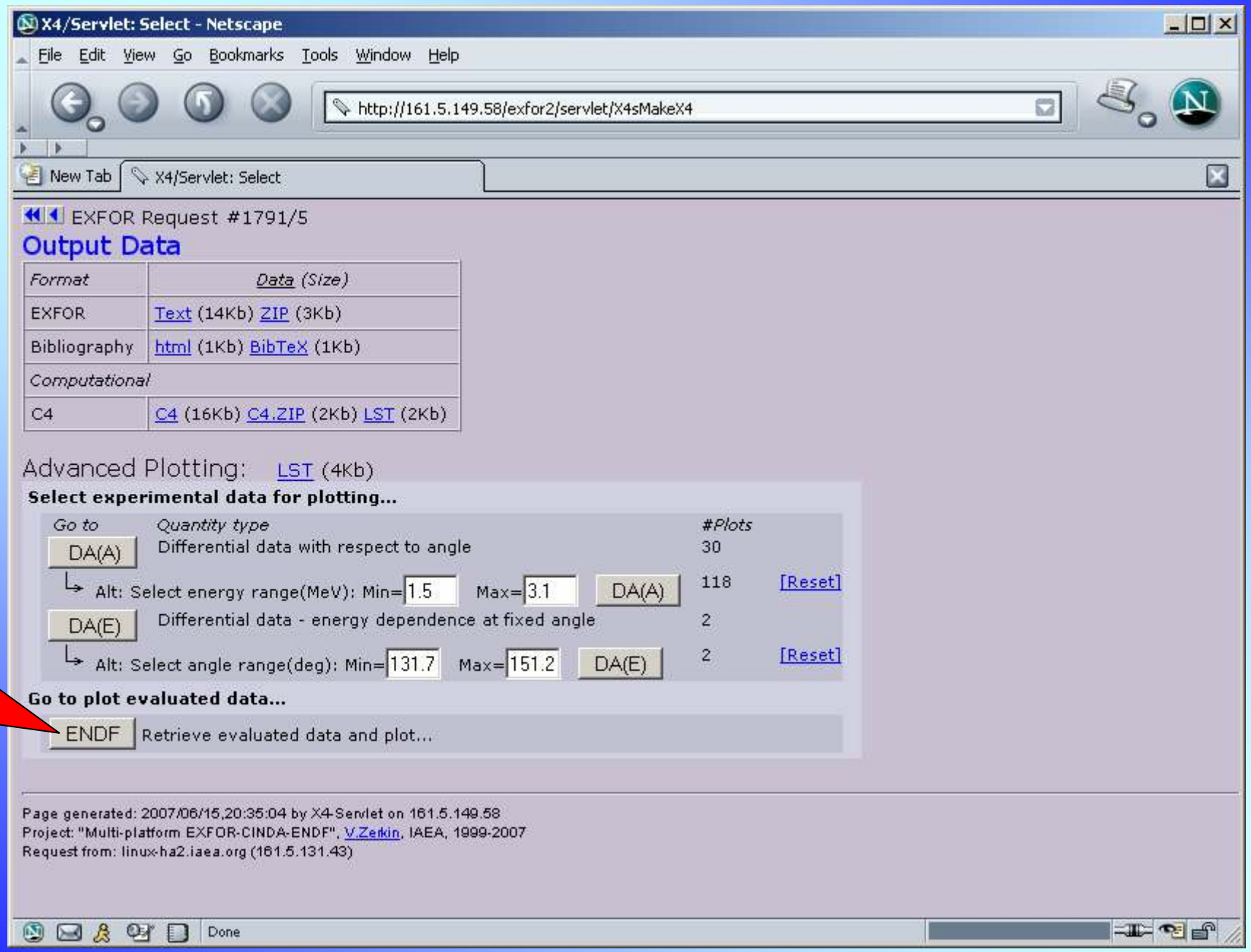
Experimental vs. evaluated data



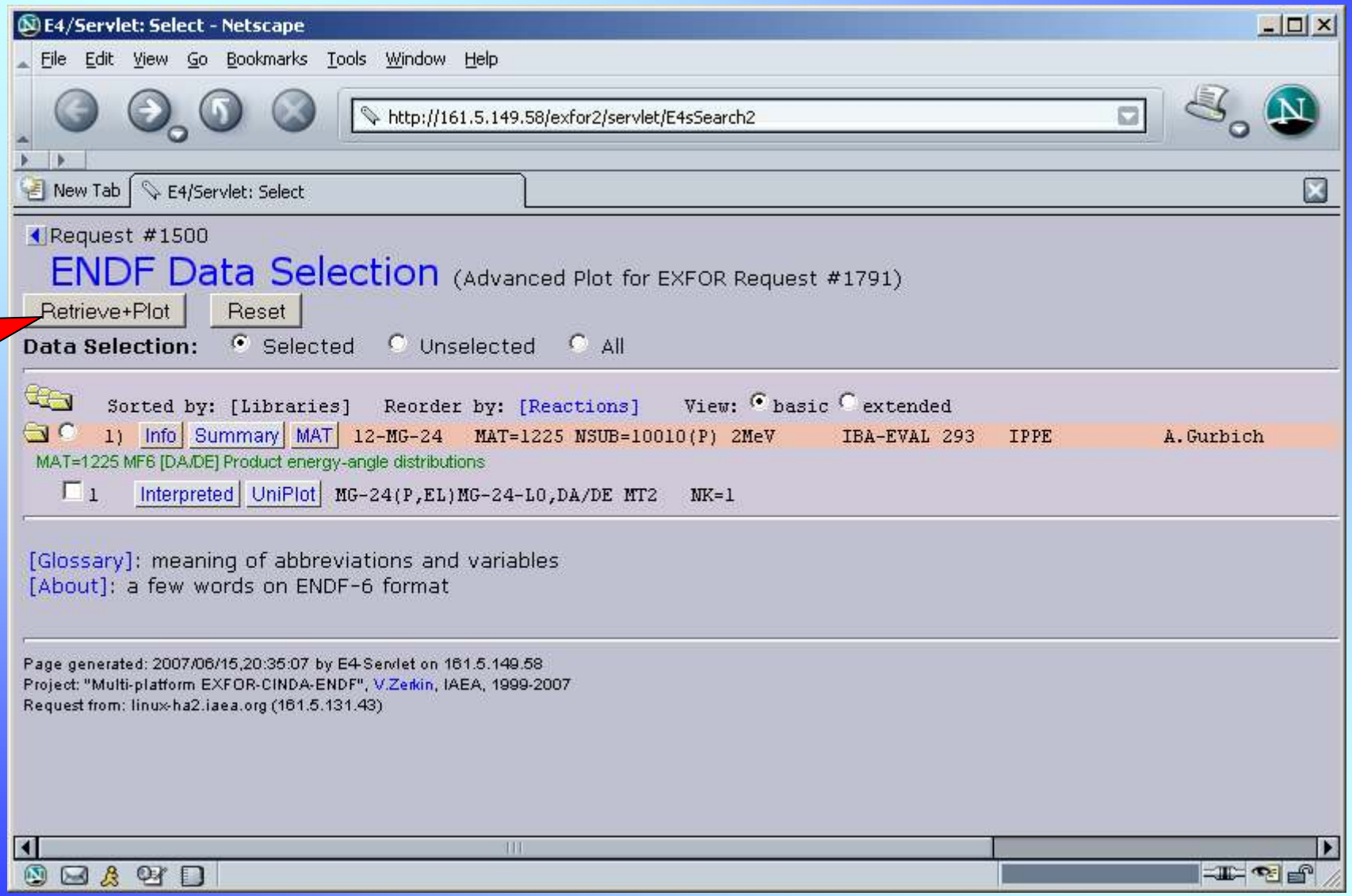
EXFOR: Advanced plot



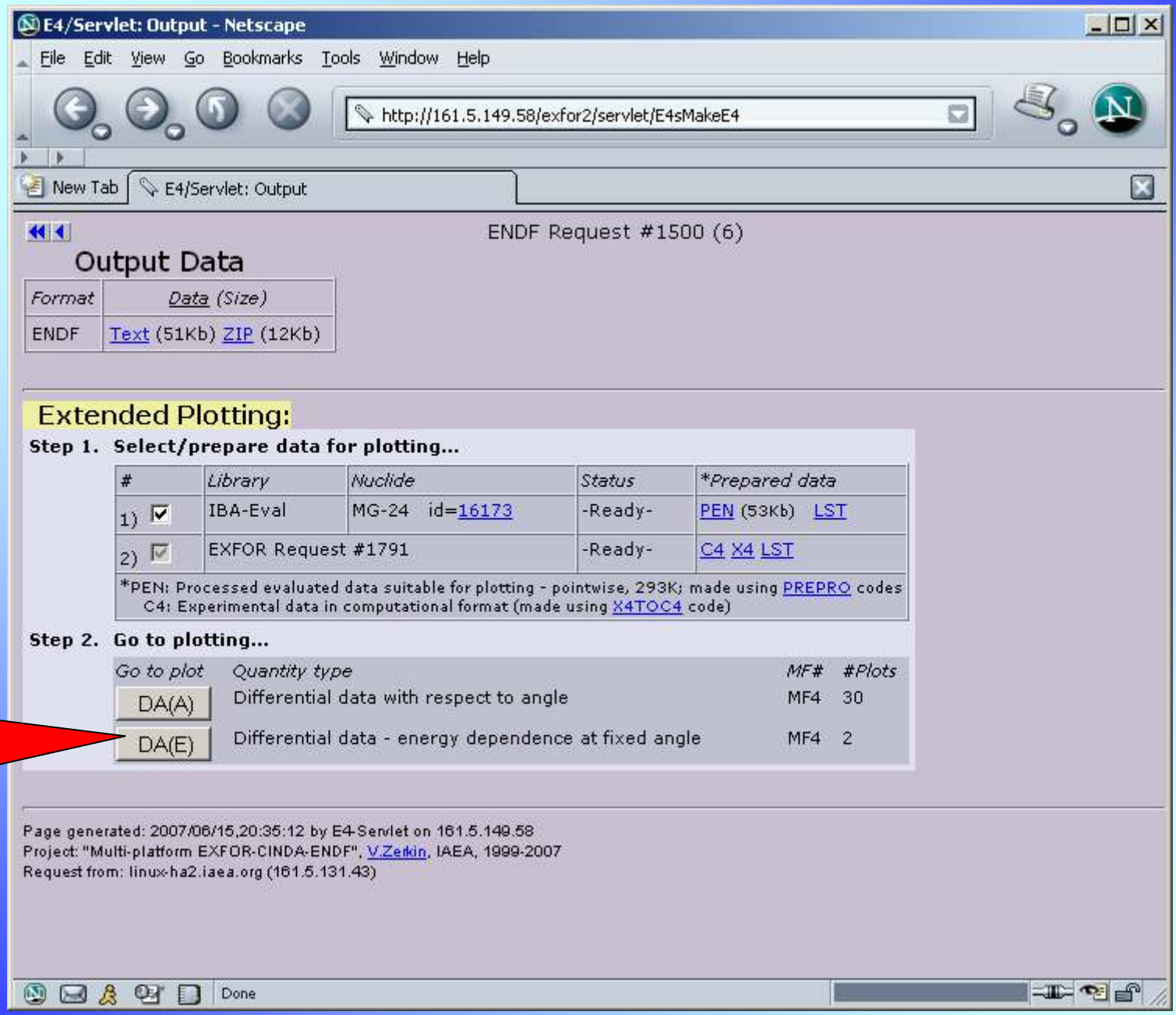
EXFOR: request evaluated data



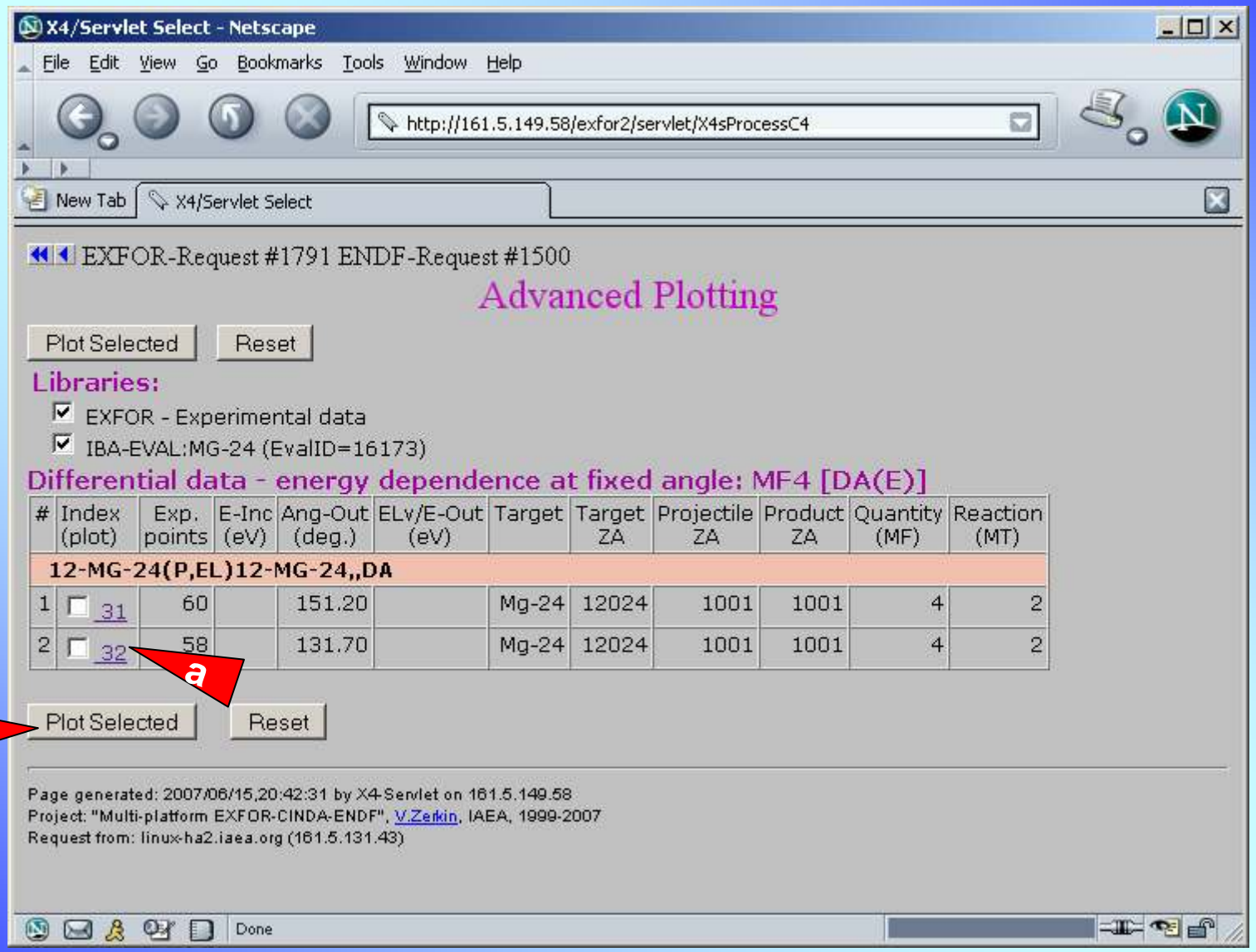
Retrieve and plot both: experimental and evaluated data



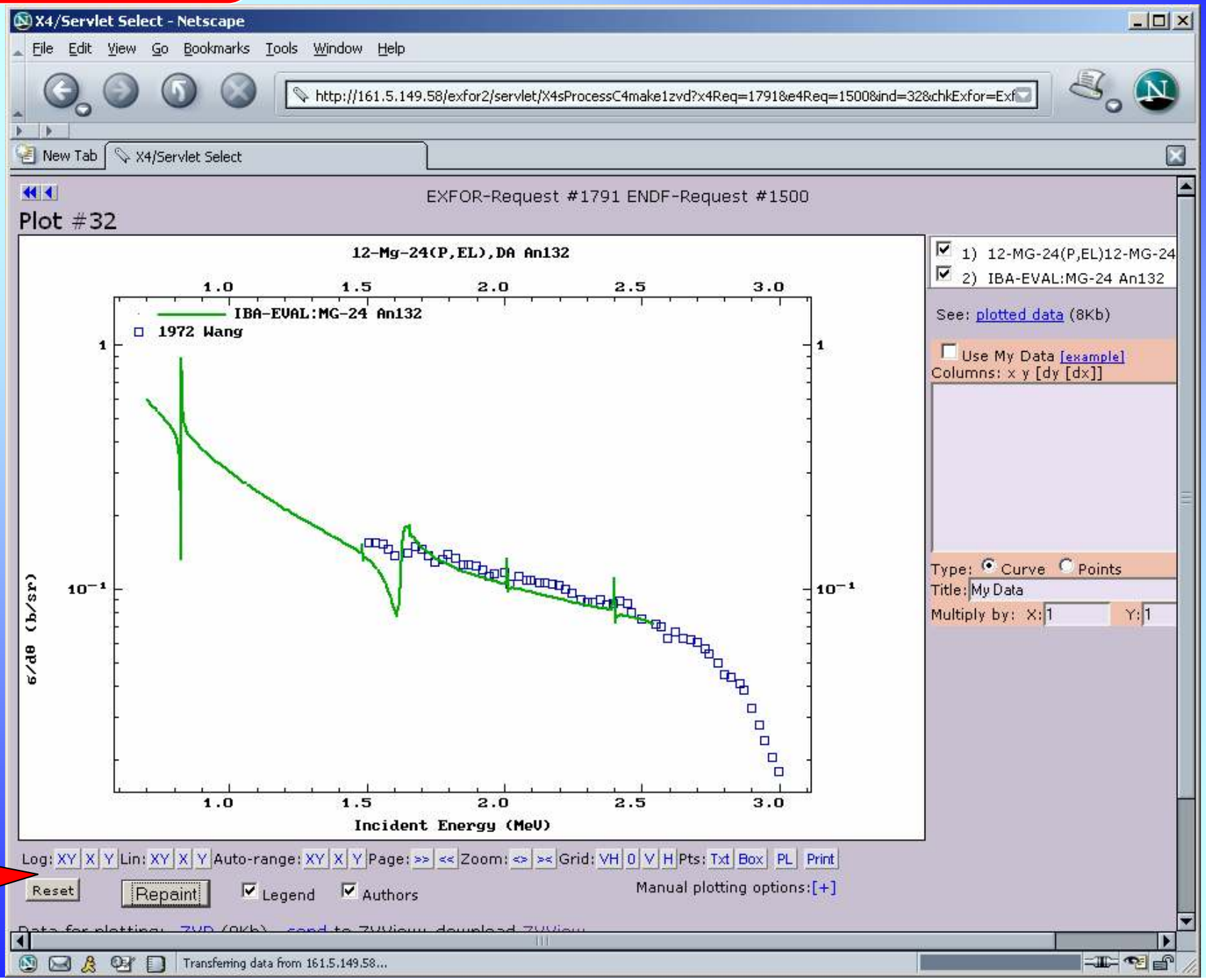
Select plot


E4/Servlet: Output - Netscape
File Edit View Go Bookmarks Tools Window Help
http://161.5.149.58/exfor2/servlet/E4sMakeE4
New Tab
E4/Servlet: Output
ENDF Request #1500 (6)
Output Data
Format
Data (Size)
ENDF
Text (51Kb) ZIP (12Kb)
Extended Plotting:
Step 1. Select/prepare data for plotting...
#
Library
Nuclide
Status
*Prepared data
1)
IBA-Eval
MG-24 id=16173
-Ready-
PEN (53Kb) LST
2)
EXFOR Request #1791
-Ready-
C4 X4 LST
*PEN: Processed evaluated data suitable for plotting - pointwise, 293K; made using PREPRO codes
C4: Experimental data in computational format (made using X4TOC4 code)
Step 2. Go to plotting...
Go to plot
Quantity type
MF#
#Plots
DA(A)
Differential data with respect to angle
MF4
30
DA(E)
Differential data - energy dependence at fixed angle
MF4
2
Page generated: 2007/06/15,20:35:12 by E4-Servlet on 161.5.149.58
Project: "Multi-platform EXFOR-CINDA-ENDF", V.Zerkin, IAEA, 1999-2007
Request from: linux-ha2.iaea.org (161.5.131.43)
Done

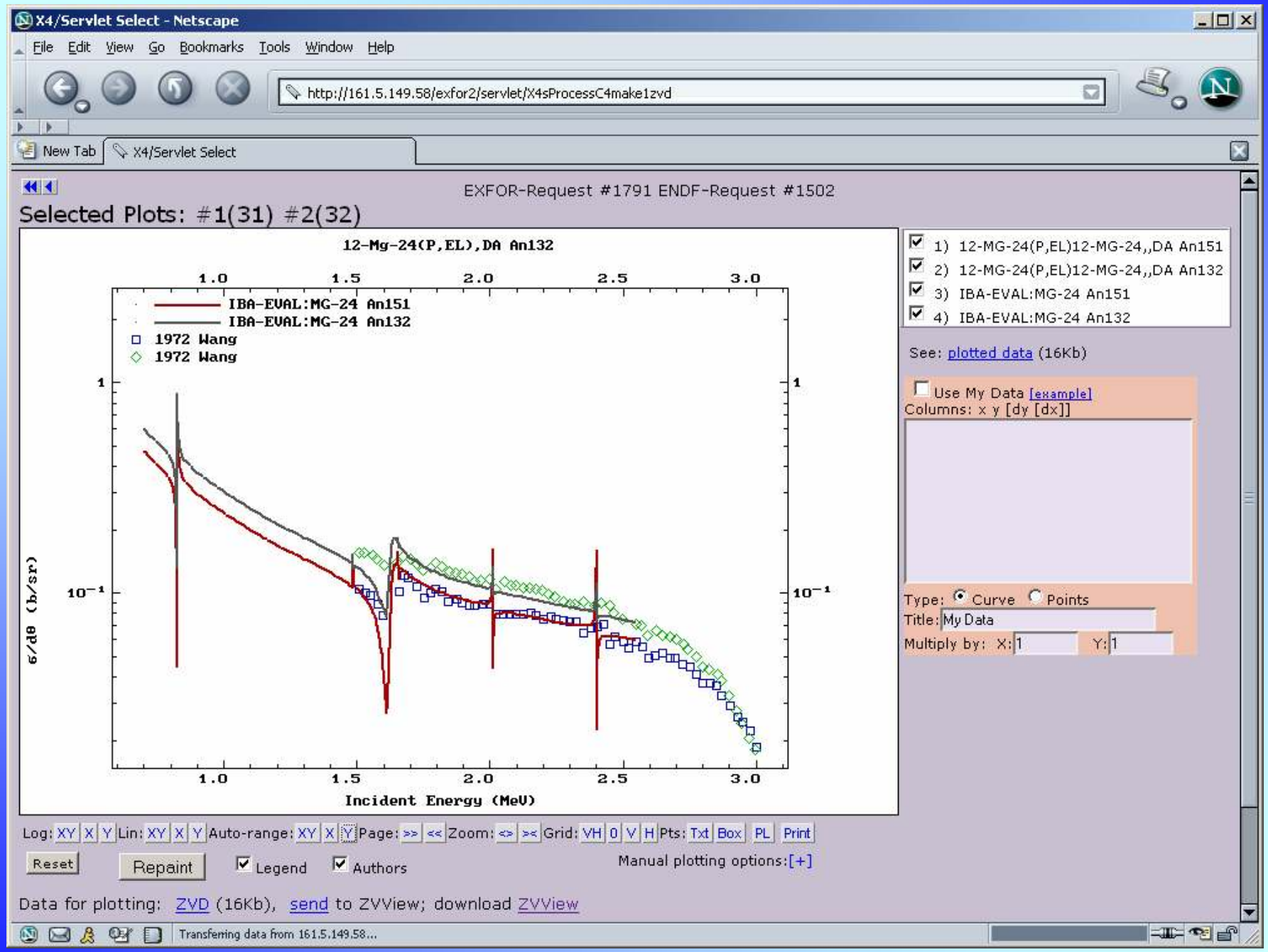
Select datasets for plotting



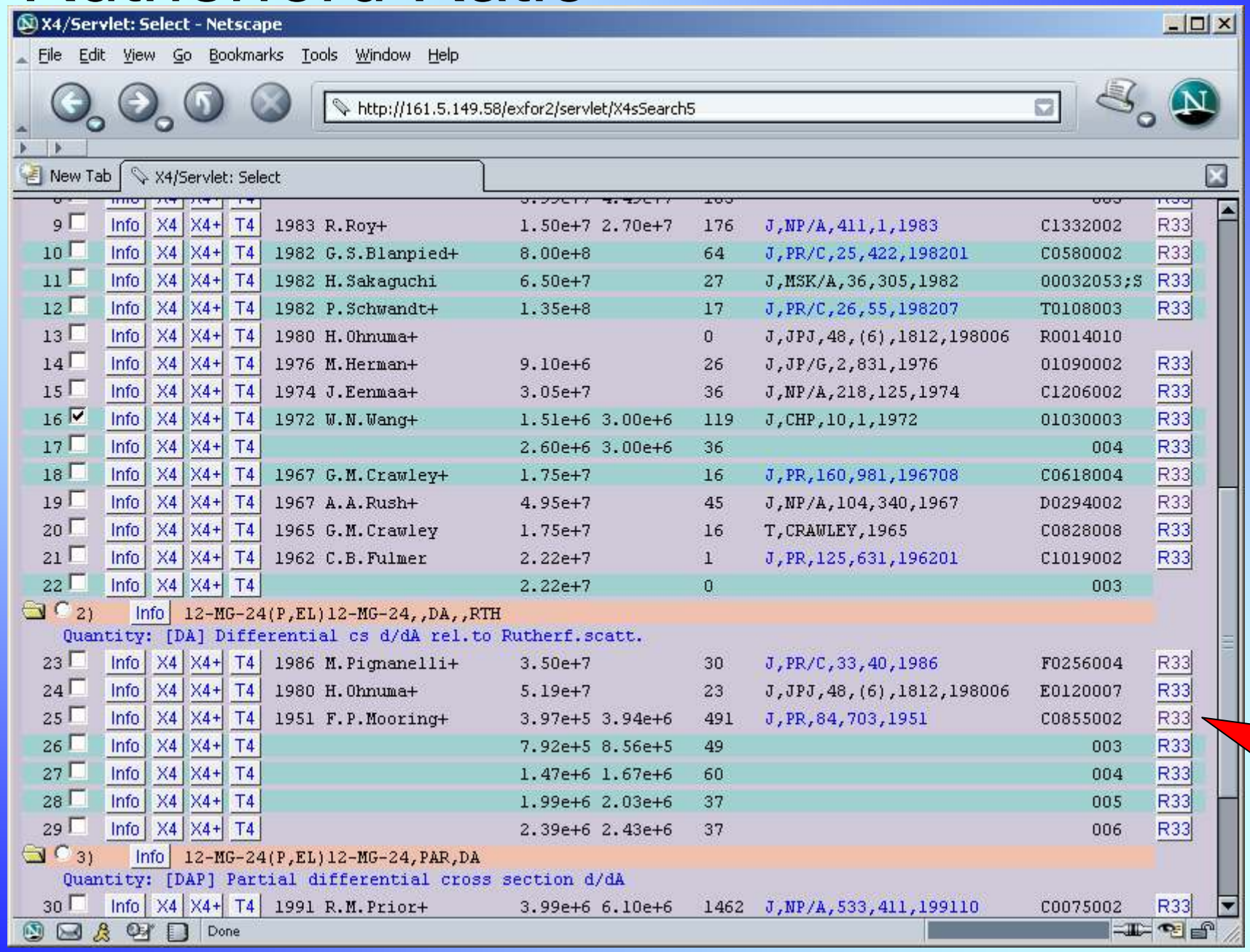
Manipulate picture

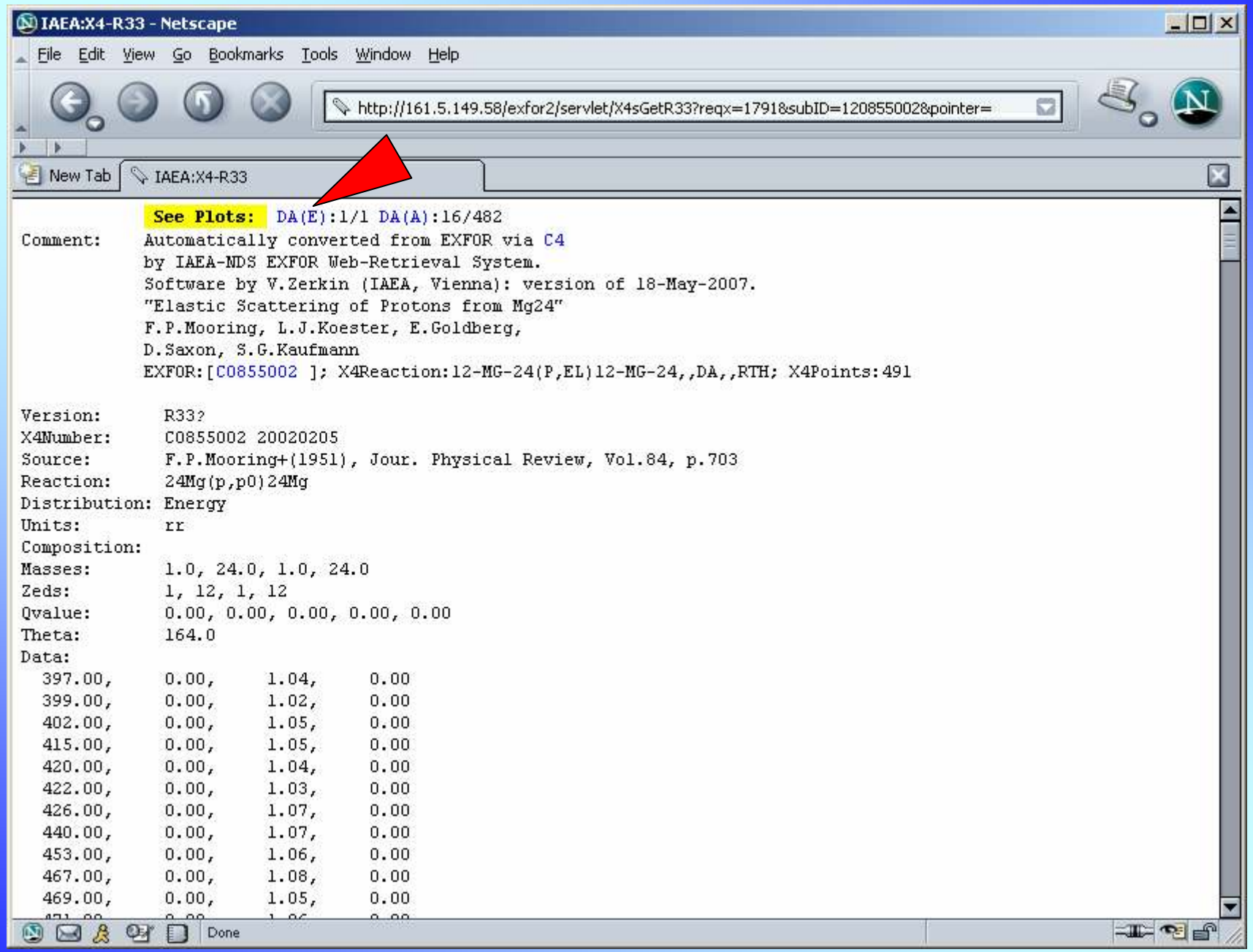


More than one dataset



Rutherford Ratio




IAEA:X4-R33 - Netscape
File Edit View Go Bookmarks Tools Window Help
http://161.5.149.58/exfor2/servlet/X4sGetR33?reqx=1791&subID=120855002&pointer=
New Tab
IAEA:X4-R33
See Plots: DA(E):1/1 DA(A):16/482
Comment: Automatically converted from EXFOR via C4
by IAEA-NDS EXFOR Web-Retrieval System.
Software by V.Zerkin (IAEA, Vienna): version of 18-May-2007.
"Elastic Scattering of Protons from Mg24"
F.P.Mooring, L.J.Koester, E.Goldberg,
D.Saxon, S.G.Kaufmann
EXFOR:[C0855002]; X4Reaction:12-MG-24(P,EL)12-MG-24,,DA,,RTH; X4Points:491
Version: R33?
X4Number: C0855002 20020205
Source: F.P.Mooring+(1951), Jour. Physical Review, Vol.84, p.703
Reaction: 24Mg(p,p0)24Mg
Distribution: Energy
Units: rr
Composition:
Masses: 1.0, 24.0, 1.0, 24.0
Zeds: 1, 12, 1, 12
Qvalue: 0.00, 0.00, 0.00, 0.00, 0.00
Theta: 164.0
Data:
397.00, 0.00, 1.04, 0.00
399.00, 0.00, 1.02, 0.00
402.00, 0.00, 1.05, 0.00
415.00, 0.00, 1.05, 0.00
420.00, 0.00, 1.04, 0.00
422.00, 0.00, 1.03, 0.00
426.00, 0.00, 1.07, 0.00
440.00, 0.00, 1.07, 0.00
453.00, 0.00, 1.06, 0.00
467.00, 0.00, 1.08, 0.00
469.00, 0.00, 1.05, 0.00
Done

Netscape

File Edit View Go Bookmarks Tools Window Help

http://161.5.149.58/exfor2/servlet/X4sZvd?file=X4R1791_tdat.c40&MF=4&flagDA_E=1

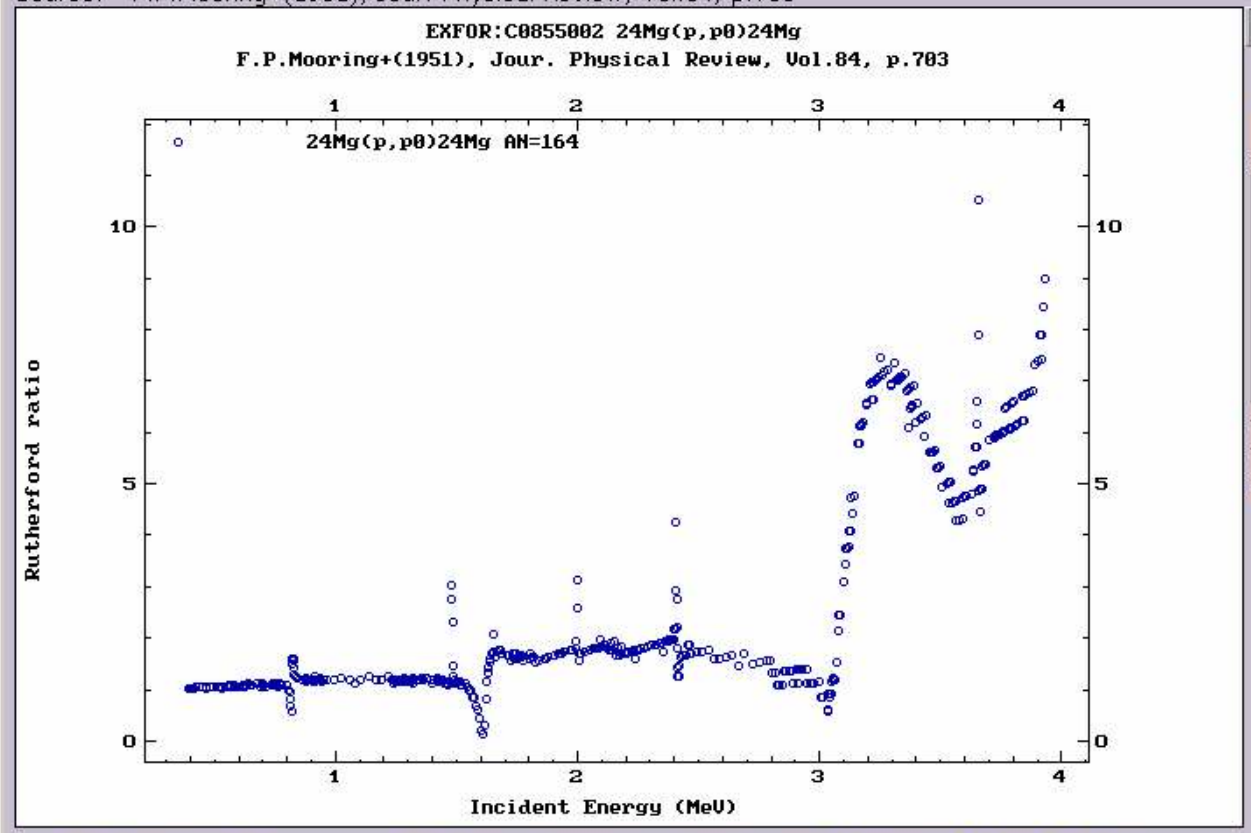
New Tab | http://161.5.149.5...40&MF=4&flagDA_E=1

Data converted from EXFOR to R33/IBANDL

EXFOR: C0855002+; Reaction: 12-MG-24(P,EL)12-MG-24,,DA,,RTH

Reaction: $^{24}Mg(p,p_0)^{24}Mg$

Source: F.P.Mooring+(1951), Jour. Physical Review, Vol.84, p.703



1) 24Mg(p,p0)24Mg AN=164

See: plotted data (14Kb)

Use My Data [example]

Columns: x y [dy [dx]]

Type: Curve Points

Title: My Data

Multiply by: X: 1 Y: 1

Log: XY X Y Lin: XY X Y Auto-range: XY X Y Page: >> << Zoom: <> >< Grid: VH 0 V H Pts: Txt Box PL Print

Reset Repaint Legend Authors

Manual plotting options:[+]

Transferring data from 161.5.149.58...

The End