



北海道大学 大学院理学研究院 附属

原子核反応データベース研究開発センター
Nuclear Reaction Data Centre (JCPRG)

Faculty of Science, Hokkaido University



HOKKAIDO
UNIVERSITY

Digitization software GSYS

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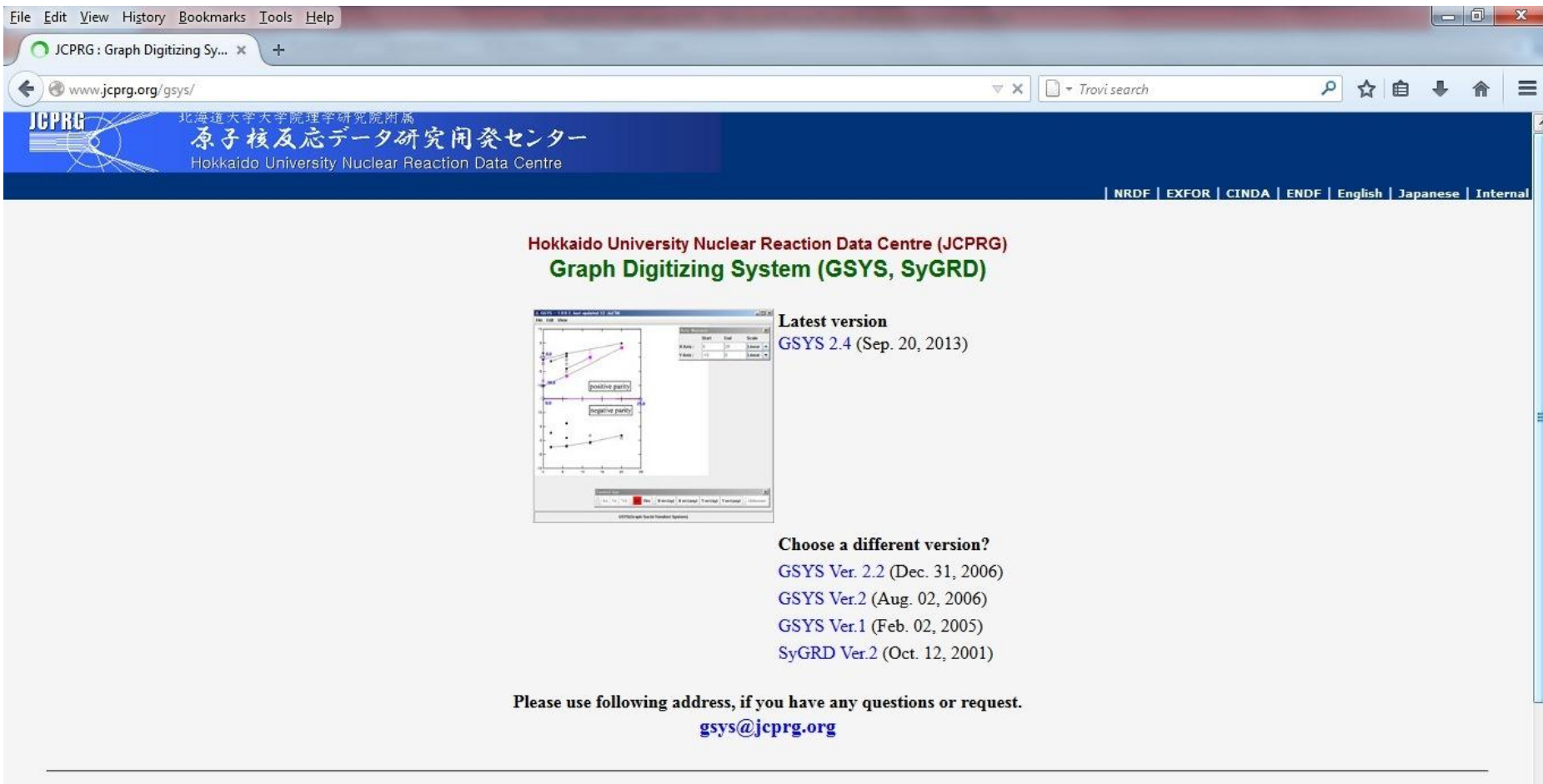
Workshop on EXFOR compilation
6-10 October 2014, Vienna, Austria

What is GSYS?

The software GSYS is used for reading the numerical data from an image file in JCPRG.

- Cross-platform window application which only requires Java Runtime Environment (JRE).
- Works on Windows, Linux, FreeBSD, Mac OS X, etc.
- Supports PNG, GIF and JPEG image formats.
- Flexible input and output that are compatible with many data formats.
- Feedback function which enables to reuse former data easily.
- Easy set-up of X-axis and Y-axis with automatic axis detection.

History of GSYS



The screenshot shows a web browser window with the address bar displaying www.jcprg.org/gsys/. The page header includes the JCPRG logo and the text "北海道大学大学院理学研究院附属 原子核反応データ研究開発センター Hokkaido University Nuclear Reaction Data Centre". A navigation menu at the top right lists "NRDF | EXFOR | CINDA | ENDF | English | Japanese | Internal". The main content area features the title "Hokkaido University Nuclear Reaction Data Centre (JCPRG) Graph Digitizing System (GSYS, SyGRD)" and a section for the "Latest version GSYS 2.4 (Sep. 20, 2013)". Below this, a list of other versions is provided: "Choose a different version? GSYS Ver. 2.2 (Dec. 31, 2006), GSYS Ver.2 (Aug. 02, 2006), GSYS Ver.1 (Feb. 02, 2005), SyGRD Ver.2 (Oct. 12, 2001)". A footer note states "Please use following address, if you have any questions or request. gsys@jcprg.org".

Hokkaido University Nuclear Reaction Data Centre (JCPRG)
Graph Digitizing System (GSYS, SyGRD)

Latest version
GSYS 2.4 (Sep. 20, 2013)

Choose a different version?
GSYS Ver. 2.2 (Dec. 31, 2006)
GSYS Ver.2 (Aug. 02, 2006)
GSYS Ver.1 (Feb. 02, 2005)
SyGRD Ver.2 (Oct. 12, 2001)

Please use following address, if you have any questions or request.
gsys@jcprg.org

~1984 Digitizer of Hokkaido University

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How to use GSYS2.4.

- Installing GSYS2.4.
 - Install Java: GSYS2.4 requires Java
 - Download an executable file "Gsys2.4.X.jar"
from the website of JCPRG (<http://www.jcprg.org/gsys/>).
 - Ready to start GSYS2.4.

Note

- Please use this system at your own risk.
- It is not allowed to use this system for any kind of business purpose.

How to use GSYS2.4.

GSYS - 2.4.7; last updated 29 Sep. '14

File Edit View

Xa Ya *Ya Auto Ad Rm X err(sy) X err(asy) Y err(sy) Y err(asy) Magnify Shrink Loupe Reset Glass Shot!

Open Image File Ctrl-O
Input Numerical Data Ctrl-I
Output Numerical Data Ctrl-S
Exit Ctrl-Q

Clear Ctrl-C
Properties

Zoom in +
Zoom out -
Reset 0
 Status bar

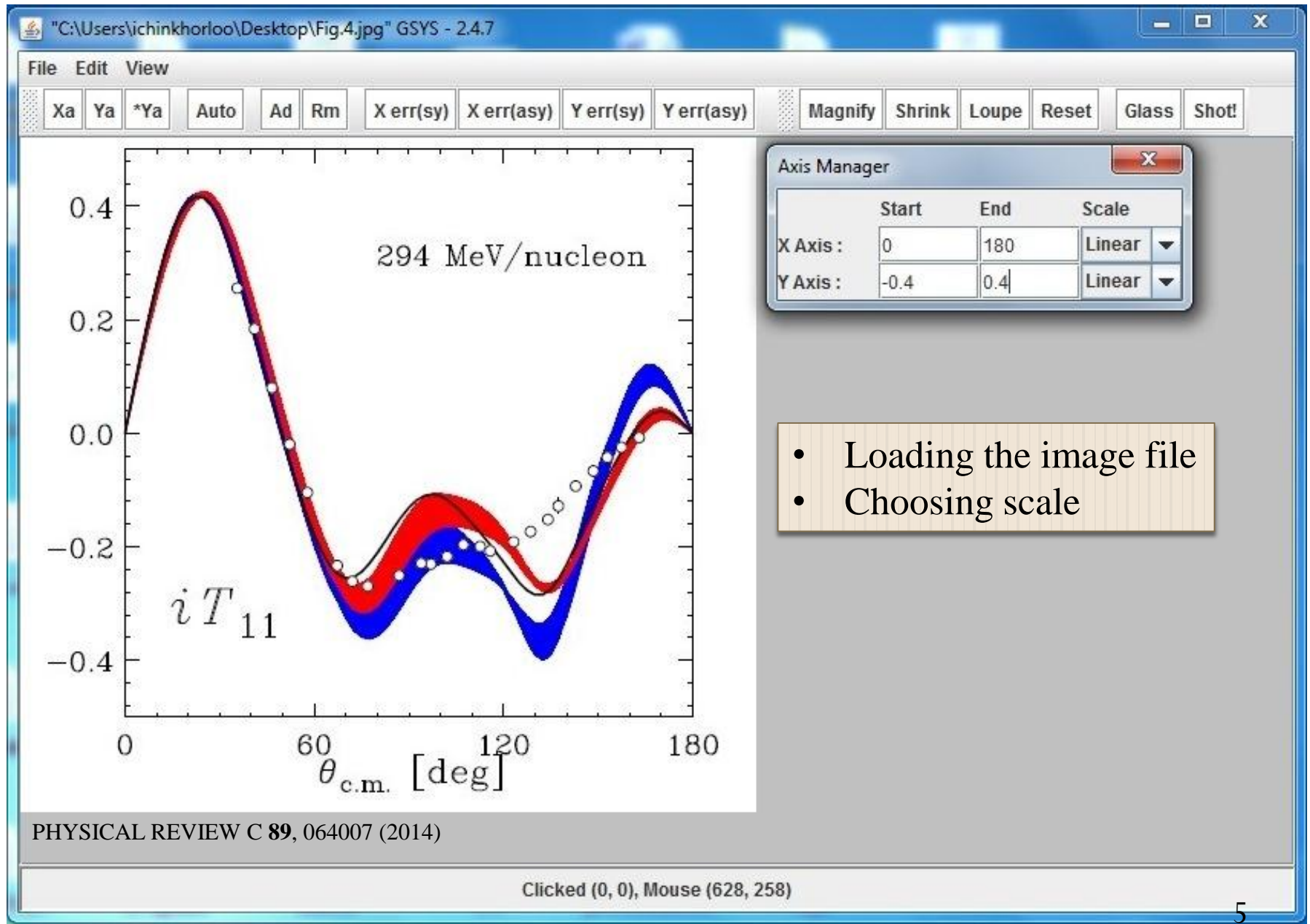
Starting up the system

Useful fuctions

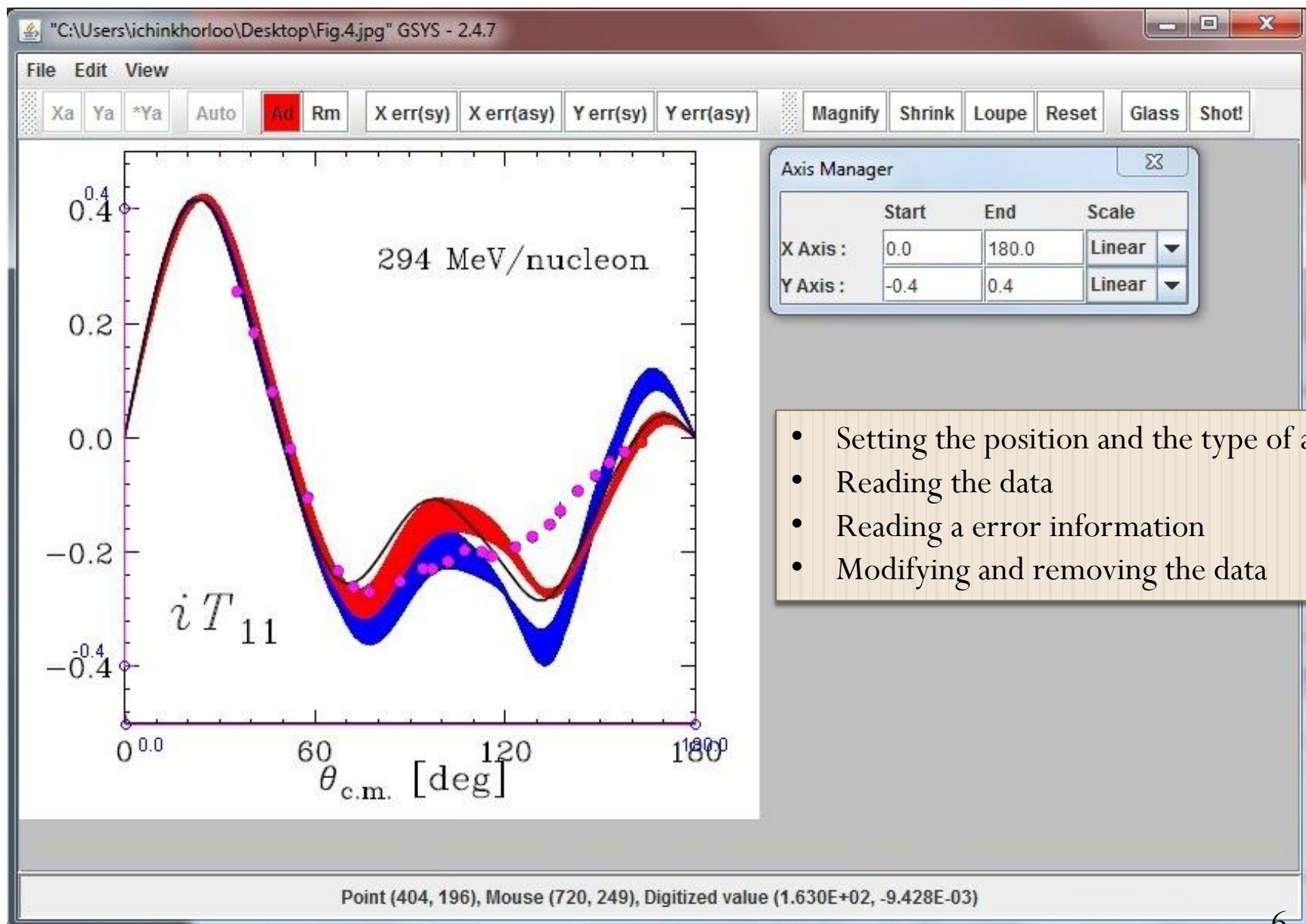
- Drag-and-drop feature
- Automatic axes detection
- Loupe function
- Orthogonality condition to X-axis and Y-axis
- Magnifying Glass function
- Automatically point recognition function
- Addition of Point shape
- Configuration file
- Snapshot function
- Feedback
- Property of Output

Welcome to GSYS !! Drag and drop your figure file or Start by selecting "Open Image File" from "File" menu

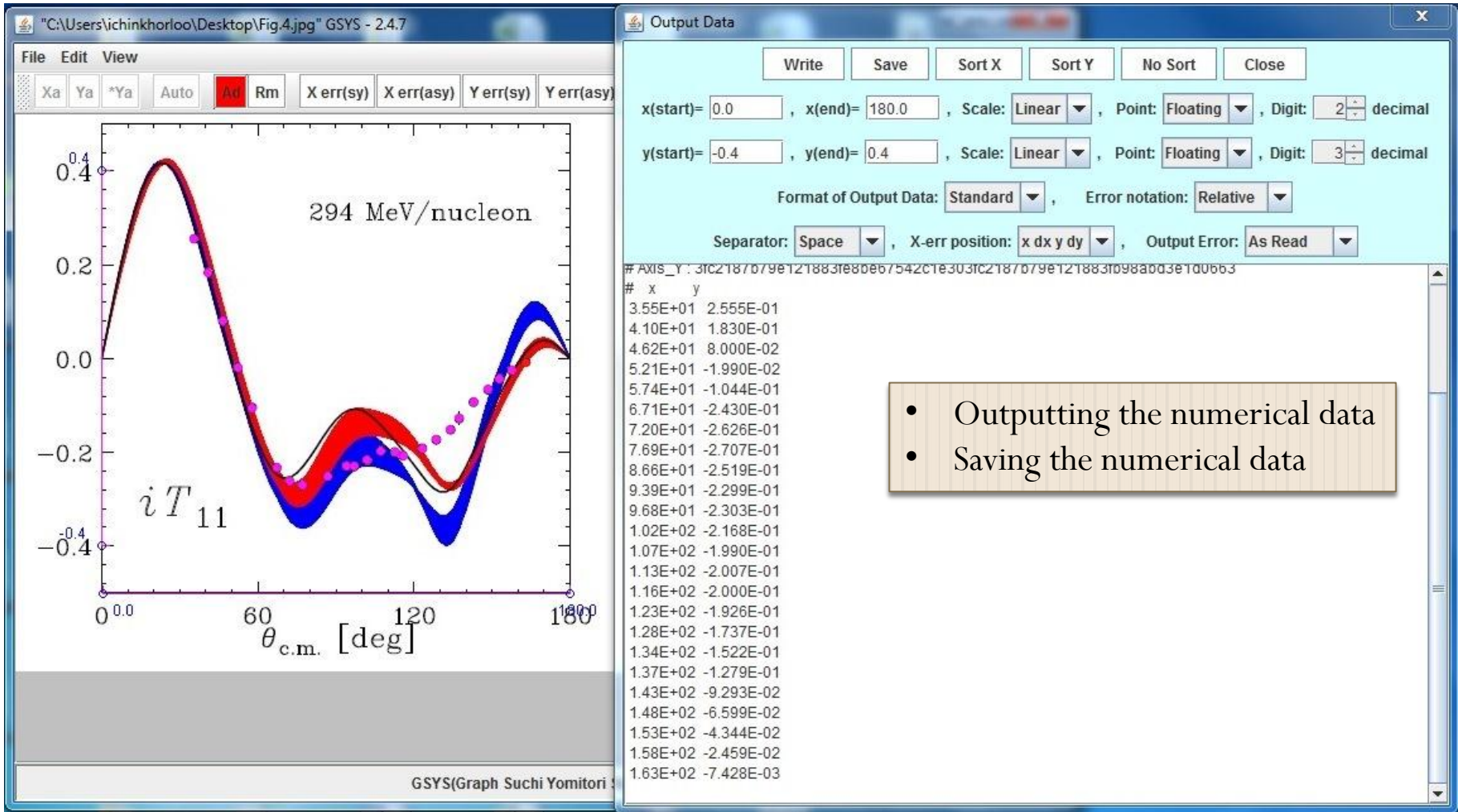
How to use GSYS2.4.



How to use GSYS2.4.

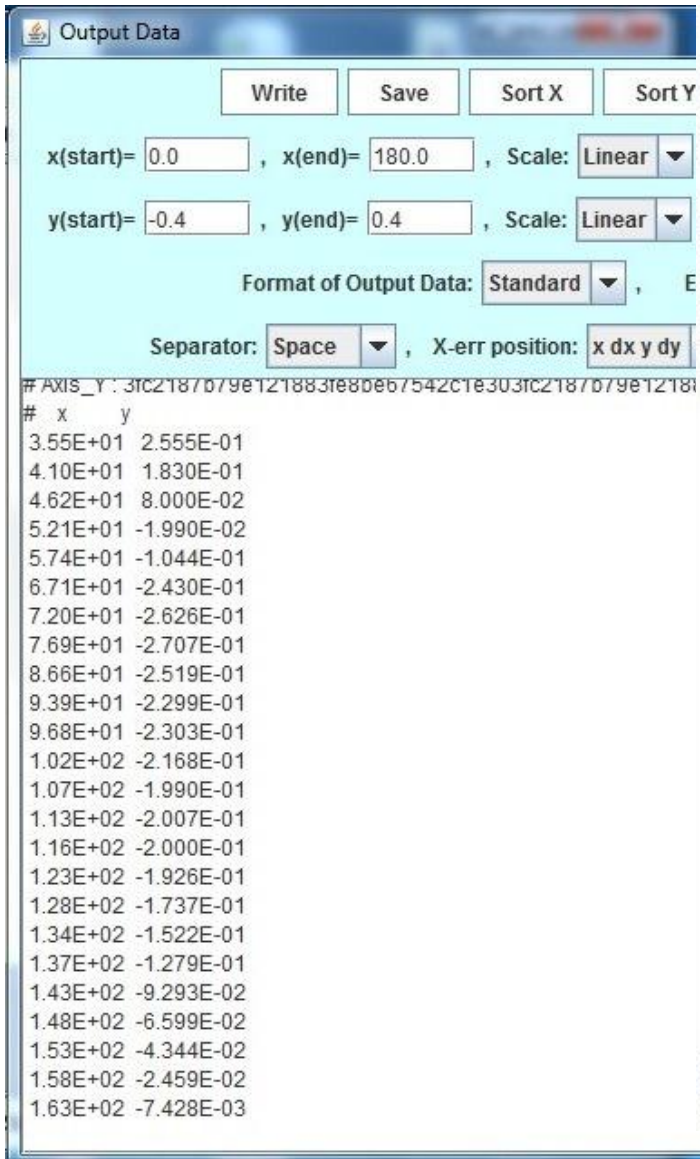


How to use GSYS2.4.



- Outputting the numerical data
- Saving the numerical data

Digitized data



Output Data dialog box configuration:

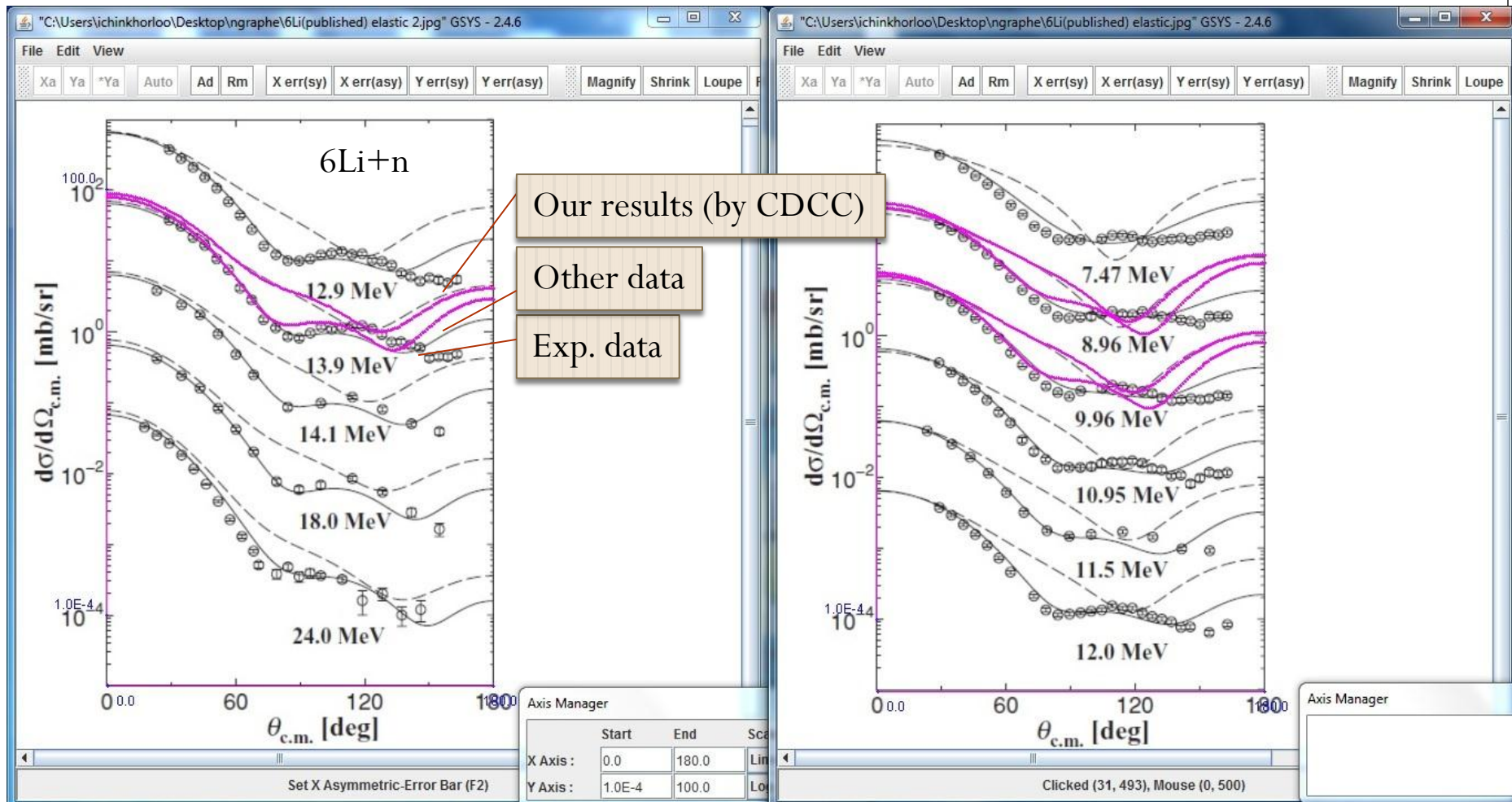
- Write:
- Save:
- Sort X:
- Sort Y:
- x(start)= 0.0 , x(end)= 180.0 , Scale: Linear
- y(start)= -0.4 , y(end)= 0.4 , Scale: Linear
- Format of Output Data: Standard
- Separator: Space , X-err position: x dx y dy

| # | x | y |
|----------|------------|---|
| 3.55E+01 | 2.555E-01 | |
| 4.10E+01 | 1.830E-01 | |
| 4.62E+01 | 8.000E-02 | |
| 5.21E+01 | -1.990E-02 | |
| 5.74E+01 | -1.044E-01 | |
| 6.71E+01 | -2.430E-01 | |
| 7.20E+01 | -2.626E-01 | |
| 7.69E+01 | -2.707E-01 | |
| 8.66E+01 | -2.519E-01 | |
| 9.39E+01 | -2.299E-01 | |
| 9.68E+01 | -2.303E-01 | |
| 1.02E+02 | -2.168E-01 | |
| 1.07E+02 | -1.990E-01 | |
| 1.13E+02 | -2.007E-01 | |
| 1.16E+02 | -2.000E-01 | |
| 1.23E+02 | -1.926E-01 | |
| 1.28E+02 | -1.737E-01 | |
| 1.34E+02 | -1.522E-01 | |
| 1.37E+02 | -1.279E-01 | |
| 1.43E+02 | -9.293E-02 | |
| 1.48E+02 | -6.599E-02 | |
| 1.53E+02 | -4.344E-02 | |
| 1.58E+02 | -2.459E-02 | |
| 1.63E+02 | -7.428E-03 | |

Original data (Requested from author)

```
MEV 294.
ENDCOMMON 3 0
ENDSUBENT 43 0
SUBENT E2452002 20140919
BIB 4 4
REACTION (1-H-1(D,EL)1-H-1,,POL/DA,,VAP)
EN-SEC ANG-CM is polar angle (c.m.) between beam and deuteron
ERR-ANALYS (DATA-ERR) No information on source of uncertainties
STATUS (TABLE) Plotted in Fig.4 of J,PR/C,89,064007,2014
ENDBIB 4 0
NOCOMMON 0 0
DATA 3 24
ANG-CM DATA DATA-ERR
ADEG NO-DIM NO-DIM
35.6 0.2557 0.0054
41.1 0.1838 0.0045
46.6 0.0802 0.005
52.2 -0.0194 0.0035
57.8 -0.1045 0.0053
67.3 -0.233 0.0052
72.1 -0.2609 0.0049
77. -0.2695 0.0076
86.9 -0.2505 0.007
93.9 -0.2291 0.0053
97. -0.2303 0.0076
102.1 -0.217 0.0067
107.3 -0.1964 0.0066
112.6 -0.1995 0.0083
115.8 -0.2073 0.0075
123.2 -0.1914 0.0074
128.6 -0.1732 0.0092
134.1 -0.1519 0.0066
137.4 -0.1281 0.0135
142.9 -0.0932 0.0076
148.5 -0.0665 0.0066
152.9 -0.0425 0.0074
157.4 -0.0248 0.0089
163. -0.0076 0.0093
ENDDATA 26 0
ENDSUBENT 35 0
SUBENT E2452003 20140919
```

GSYS2.4.



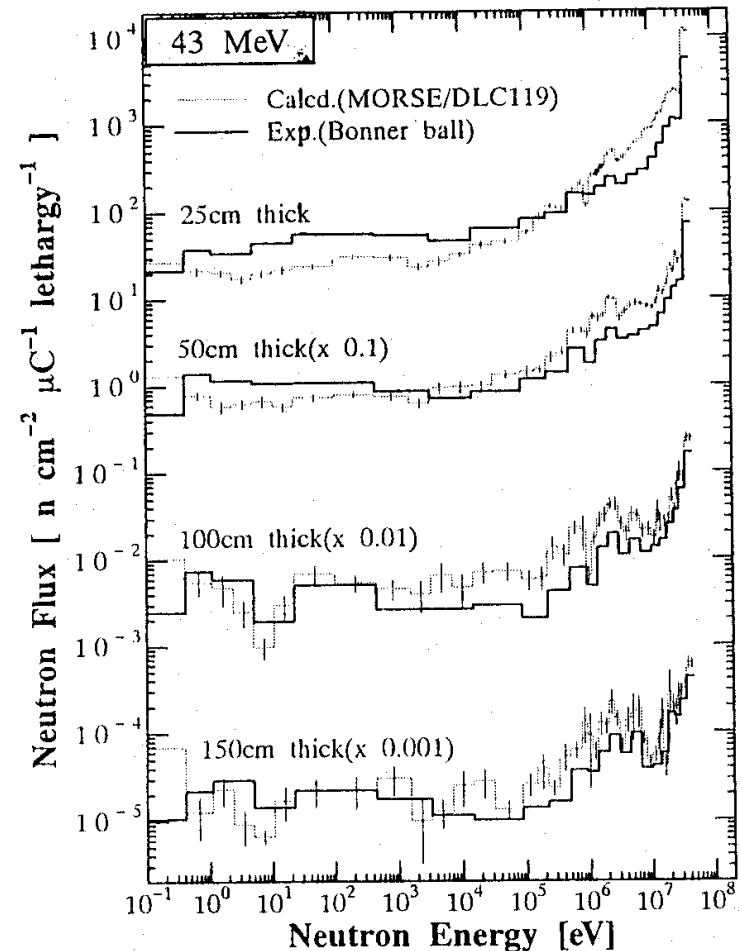
- Open Image File Ctrl-O
- Input Numerical Data Ctrl-I
- Output Numerical Data Ctrl-S
- Exit Ctrl-Q

Useful for comparison

Problems for Digitization

Digitization is very useful for old paper compilation

- Small error bar
- unflexible figures
- undistinguishable data points



(a)



Thank you very much