IAEA
International Atomic Energy Agency
*Atoms for Peace and Development*

# Coordinated Research Project on Updating/Improving Nuclear Level Densities for Applications: points for discussion

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# Scope I

- Measurements:
  - Compilation of all available NLD data

What are these NLD data?

Total level densities ρ(U); average resonance spacings (s-, p-wave); cumulative number of observed levels

Other ??

# Scope I cont'd

- Models for total NLD ρ(U)
  - Global
    - BSFG, GC, EGSM, HFB
    - How do we choose the models?
    - Criteria for recommending global models

# Scope I cont'd

- Model developments
  - Spin dependence?
  - Treatment of continuum?
  - Other theoretical approaches?

# Evaluation - recommendation

- Experimental data
  - Oslo Method: Model dependent uncertainties
  - Average Resonance Spacings
- Models
  - Validation criteria

# Dissemination

- Retrieval interface:
  - Modern; versatile
  - Bulk download; search engine; APIs

# Participation

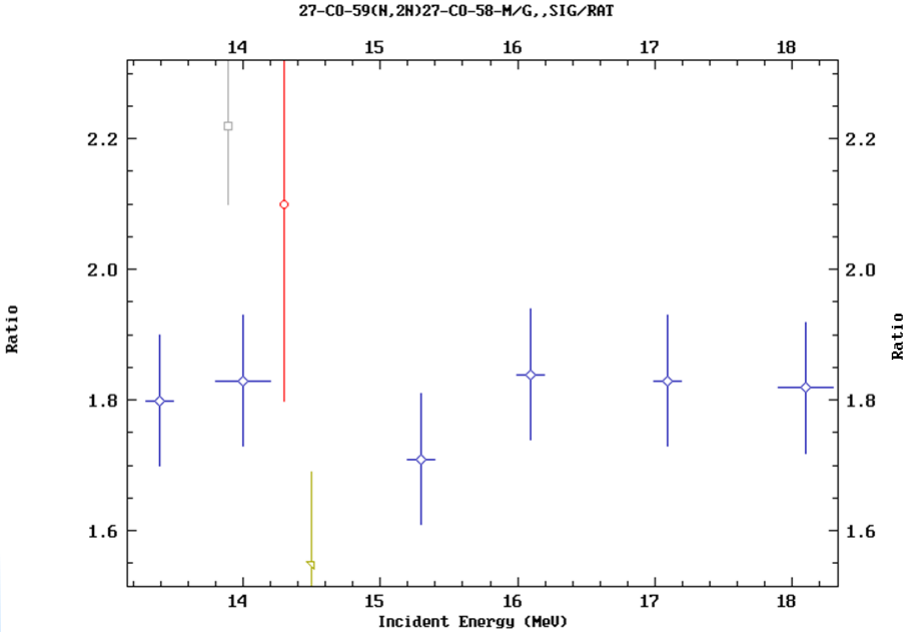
- Inclusive
- Criterium: what can they offer?

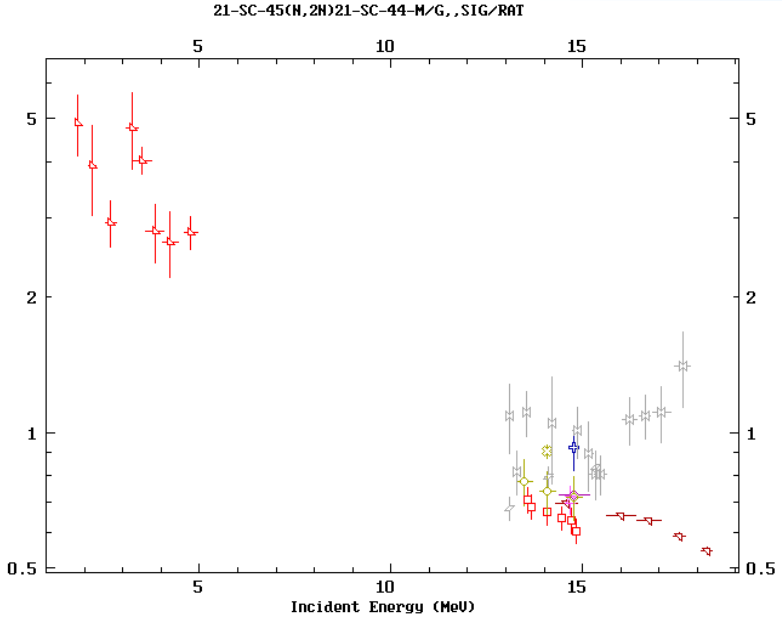
# Isomeric cross-section ratios

- Can we use them to recommend the spin distribution component?
- EXFOR:
  - n,*: 392 entries M/G, M(G)/T, etc.
  - p,*: 252 entries M/G, M/T, etc.
  - alpha,*: 128 entries M/G, M/T etc.

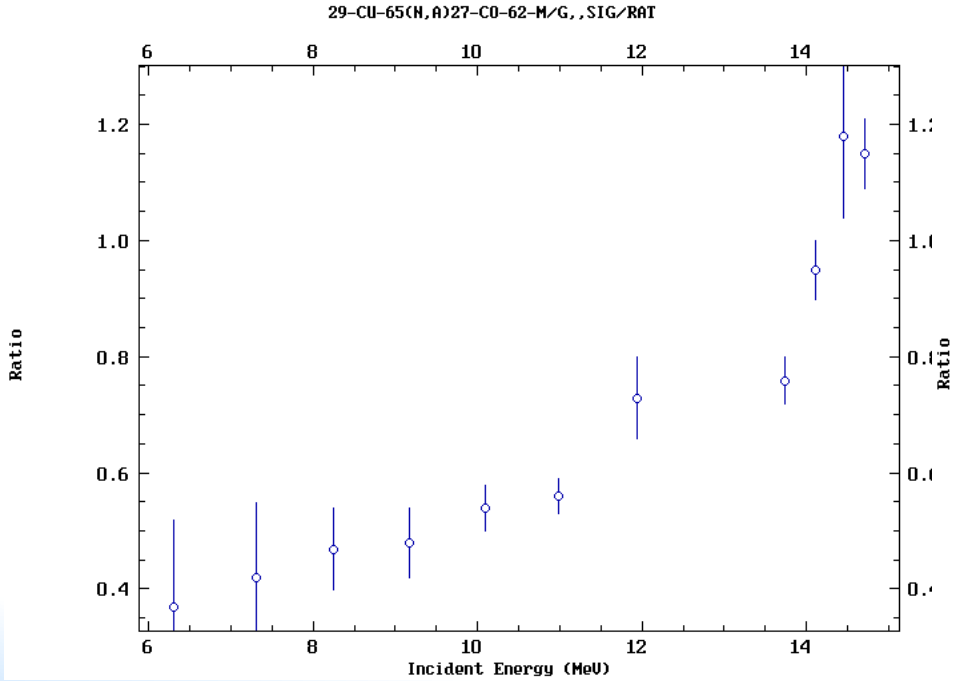
Not all the data are suitable: higher energies, SPA, MXW

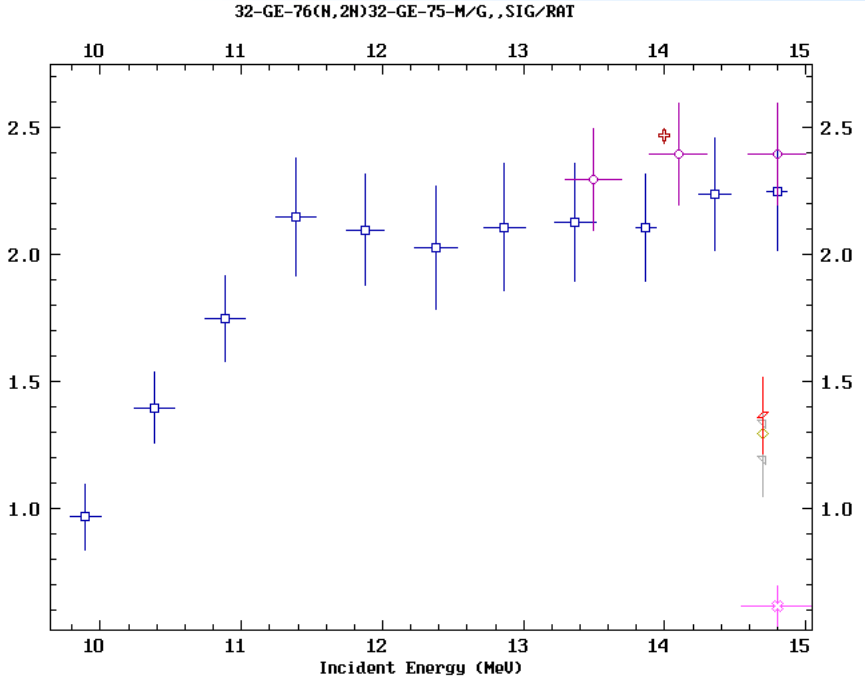
# Examples: n,*


27-CO-59(N,2N)27-CO-58-M/G,,SIG/RAT
14
15
16
17
18
2.2
2.0
1.8
1.6
Ratio
Incident Energy (MeV)

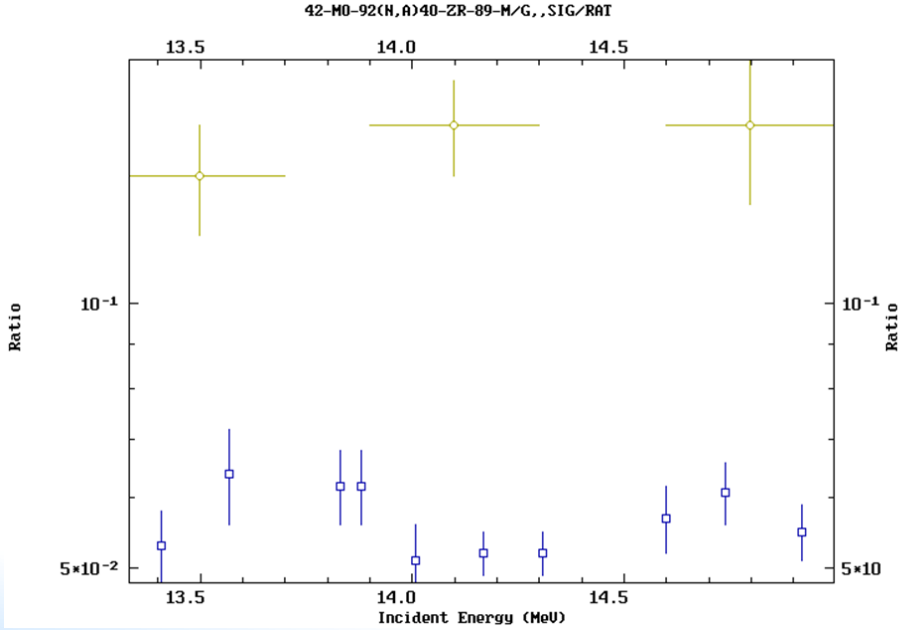

21-SC-45(N,2N)21-SC-44-M/G,,SIG/RAT
5
10
15
0.5
1
2
Ratio
Incident Energy (MeV)

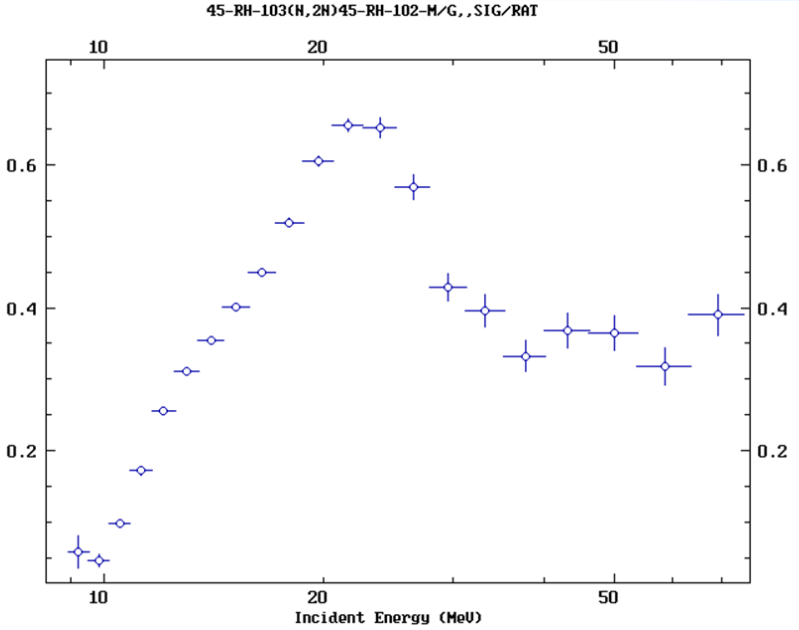
# Examples cont'd



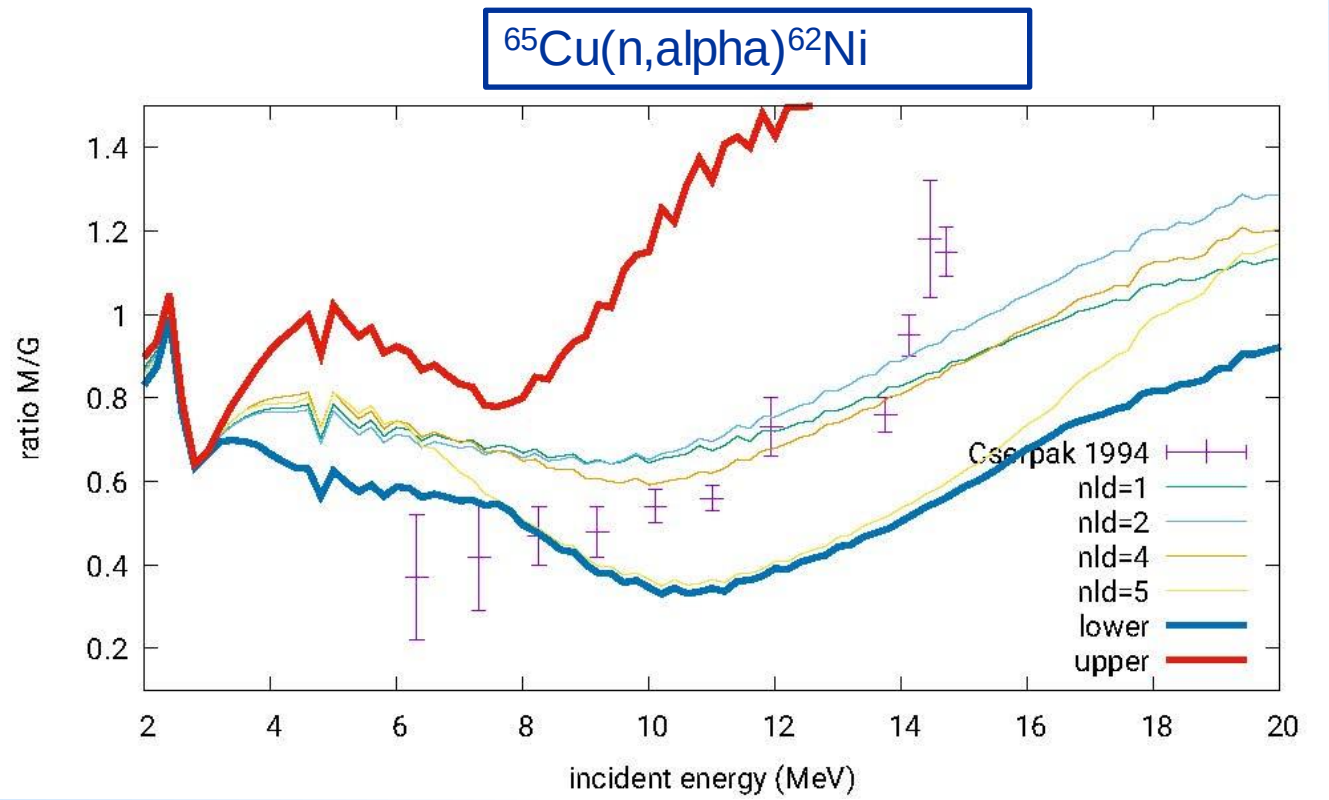



# Examples cont'd



# Comparison with NLD models



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*Thank you!*