

# Atlas of Neutron Resonances

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To be published in 2005\*



## Contents

- Individual resonance parameters for nuclei  $Z = 2 - 100$
- Thermal cross sections, coherent scattering amplitudes for  $Z = 1 - 100$
- Average resonance parameters, level spacings, capture widths, neutron strength functions, photon strength functions for s-, p-, d-wave neutrons, Maxwellian average 30-keV capture cross sections, and resonance integrals
- Updated introduction stressing the systematics of average resonance parameters and tabulating nuclear level density parameters and parity non-conservation results

### Atlas of Neutron Resonances

Resonance Parameters and Thermal Cross Sections  
Part A:  $Z=1-60$

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### Atlas of Neutron Resonances

Resonance Parameters and Thermal Cross Sections  
Part B:  $Z=61-100$

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Academic Press 2005

### Neutron Cross Sections

volume 1

### Neutron Cross Sections

volume 1

Neutron Resonance Parameters and Thermal Cross Sections  
Part B:  $Z=61-100$

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Academic Press 1984

\* Tentative, under negotiation with Academic Press

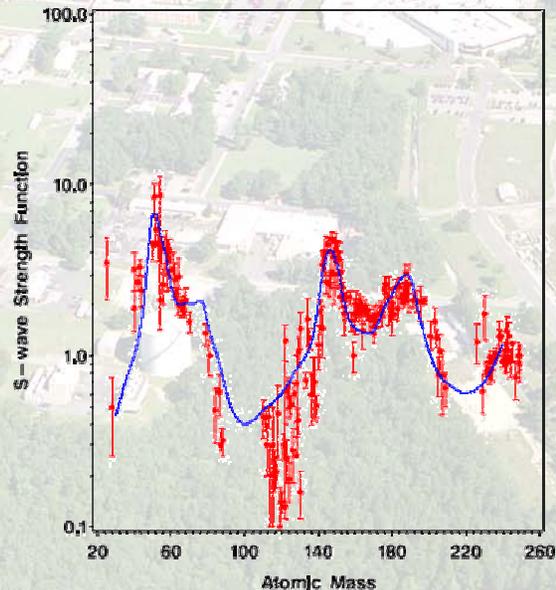
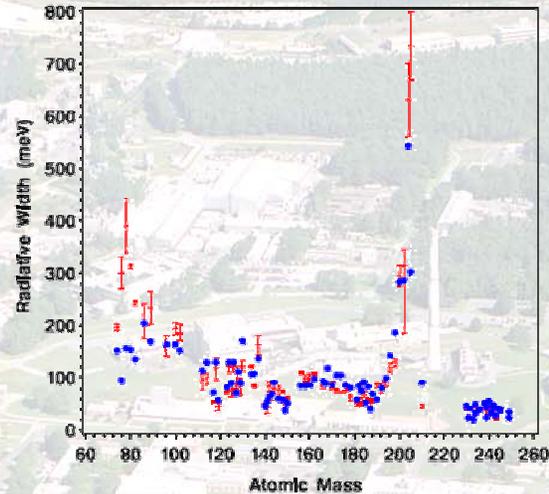
# Atlas of Neutron Resonances

## History

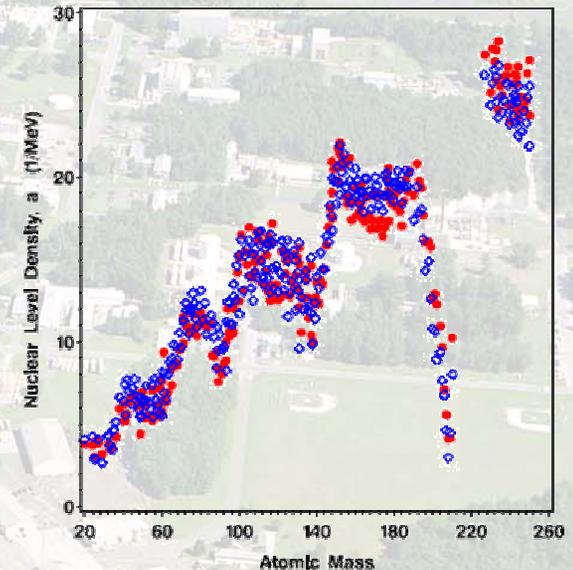
- ✓ The 1<sup>st</sup> edition of BNL-325 appeared in 1955; it was prepared by Donald J. Hughes and John A. Harvey
- ✓ BNL-325 has been widely used and frequently referenced
- ✓ Atlas of Neutron Resonances represents the 5<sup>th</sup> edition of BNL-325

## Features

- ✓ Atlas of Neutron Resonances contains recommended values only
- ✓ Thermal cross sections
- ✓ Coherent scattering amplitudes
- ✓ Average resonance parameters
  - Average radiative widths
  - Level spacings
  - Neutron strength functions for s-, p-, d-partial waves
  - 30-keV Maxwellian average capture cross sections
  - Resonance integrals
- ✓ Consistency between individual resonance parameters and thermal constants as well as the average resonance parameters



- ✓ Expanded introduction to include
  - Level density parameters
  - Parity non-conservation results
  - E1 photon strength functions
  - Predictions of nuclear models compared with average resonance parameters



## Availability

- ✓ Atlas of Neutron Resonances (to be published in 2005) will be a prime source handbook that meets the needs of researchers and evaluators
- ✓ For future information go to [www.nndc.bnl.gov/atlas](http://www.nndc.bnl.gov/atlas)