

Digital Object Identifiers (DOI's) for nuclear data

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BROOKHAVEN
NATIONAL LABORATORY

a passion for discovery



U.S. DEPARTMENT OF
ENERGY

Office of
Science

DOI's are unique id's on a publication/dataset; doi.org resolves them to URLs



The screenshot shows the homepage of the International DOI Foundation (IDF). At the top left is the DOI logo. Below it is a navigation menu with links: HOME | HANDBOOK | FACTSHEETS | FAQs | RESOURCES | USERS | NEWS | MEMBERS AREA. The main heading is "The DOI® System". Below this is a collage of images representing various digital and scientific fields: a film set with a clapperboard, a camera, a laptop, a microscope, a satellite dish, and a hand holding a tablet. To the right of the collage is a "Resolve a DOI Name" section with a text input field containing "10.1016/j.jnds.2011.11.002" and a "SUBMIT" button. Below that is a "DOI.ORG® In the News" section with several news links: "DOI System reaches one billion resolutions per year", "China National Knowledge Infrastructure (CNKI) Appointed New DOI Registration Agency", "DOI system strengthens social infrastructure", "Additions to DOI technical infrastructure", and "Linked Content Coalition". There is also a "More News & Press Coverage" link and a "Subscribe to the DOI News Mailing List" link. At the bottom of the page, it says "Updated 9 April 2013 | DOI®, DOI.ORG® and shortDOI® are trademarks of the International DOI Foundation."

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HOME | HANDBOOK | FACTSHEETS | FAQs

The DOI[®] System

This is the web site of the International DOI Foundation (IDF), and its activities. The DOI system provides a technical and social infrastructure of identifiers for use on digital networks. The DOI system implements the International DOI System (ISO 15926-2).

The IDF is the governance and management body for the federal registration authority for the ISO standard (ISO 26324) for the DOI system.

For information on the DOI system as a whole, consult the [Home](#) page. For information on the DOI system as a whole, consult the [Home](#) page. For information on the DOI system as a whole, consult the [Home](#) page. For information on the DOI system as a whole, consult the [Home](#) page.

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Nuclear Data Sheets

Volume 112, Issue 12, December 2011, Pages 2887–2996

Special Issue on ENDF/B-VII.1 Library

ENDF/B-VII.1 Nuclear Data for Science and Technology: Cross Sections, Covariances, Fission Product Yields and Decay Data

M.B. Chadwick^a, M. Herman^b, P. Obložinský^b, M.E. Dunn^c, Y. Danon^d, A.C. Kahler^e, D.L. Smith^f, B. Pritychenko^g, G. Arbanas^h, R. Arcillaⁱ, R. Brewer^j, D.A. Brown^k, R. Capote^l, A.D. Carlson^m, Y.S. Choⁿ, H. Derrien^o, K. Guber^p, G.M. Hale^q, S. Hoblit^r, S. Holloway^s, T.D. Johnson^t, T. Kawano^u, B.C. Kiedrowski^v, H. Kim^w, S. Kurihara^x, N.M. Larson^y, L. Leal^z, J.P. Lestone^{aa}, R.C. Little^{ab}, E.A. McCutchan^{ac}, R.E. MacFarlane^{ad}, M. MacInnes^{ae}, C.M. Mattoon^{af}, R.D. McKnight^{ag}, S.F. Mughabghab^{ah}, G.P.A. Nobre^{ai}, G. Palmiotti^{aj}, A. Palumbo^{ak}, M.T. Pigni^{al}, V.G. Proryaev^{am}, R.O. Sayer^{an}, A.A. Sorzogni^{ao}, N.C. Summers^{ap}, P. Talou^{aq}, I.J. Thompson^{ar}, A. Trkov^{as}, R.L. Vogt^{at}, S.C. van der Marck^{au}, A. Wallner^{av}, M.C. White^{aw}, D. Warda^{ax}, P.G. Young^{ay}

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osti.gov and datacite.org want DOI's on all nuclear data in US; likely by end of FY14



■ DOI's are unique id's on a publication/dataset

- NNDC will generate them for NNDC-generated data
- If CSEWG & USNDP OK, we will assign DOI's for all US nuclear databases
- We decide on URL scheme
- We provide a permanent URL to a dataset, datacite.org maintains the DOI->URL redirect
- We promise to maintain URL's forever (or provide tombstone)

■ This is a very good thing

- Gives proper credit to evaluators
- Generates citations (always good for performance appraisals)

How does this affect us?

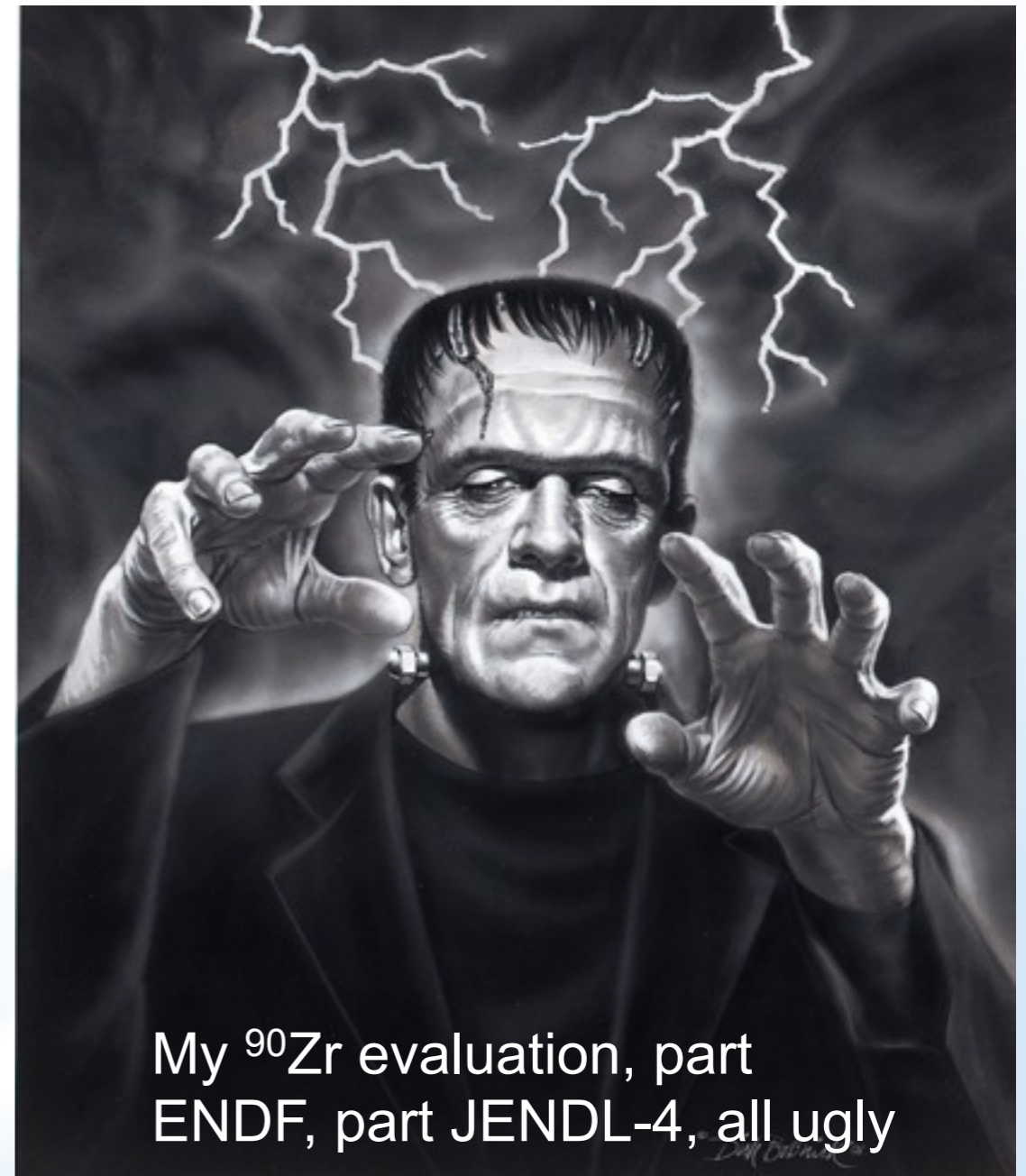


- **ENDF borrows from other libraries**

We'd like to be able to give proper credit; e.g a JAEA DOI for a JENDL-4.0 derived evaluation rather than an NNDC DOI

- **What about partial evaluations?**

Fine grained DOI's (i.e. on evaluation parts) allow us to make Frankenevaluations with proper attribution.



My ^{90}Zr evaluation, part ENDF, part JENDL-4, all ugly

For ENDF/B series libraries, these are my first thoughts



■ For legacy libraries (ENDF/B-I through VI)

- These were distributed in tapes (real or virtual)
- Each tape provided updates to your center's copy of the library
- MAT's, MT's and MF's all jumbled
- Records of what is on what tape and when they were released not easily recoverable
- Released data != what we see on web
- **Proposed solution:** One DOI for each release of a library

■ For ENDF/B-VII series

- Distinct sublibraries and distinct evaluations

- One material, zero or one projectile
- Clear release procedures
- ENDF format does have clear structure, so could give DOI's for each MF/MT, but we can't tell who evaluated which part
- **Proposed solution:**
 - One DOI for each evaluation
 - Need DOI's from other centers

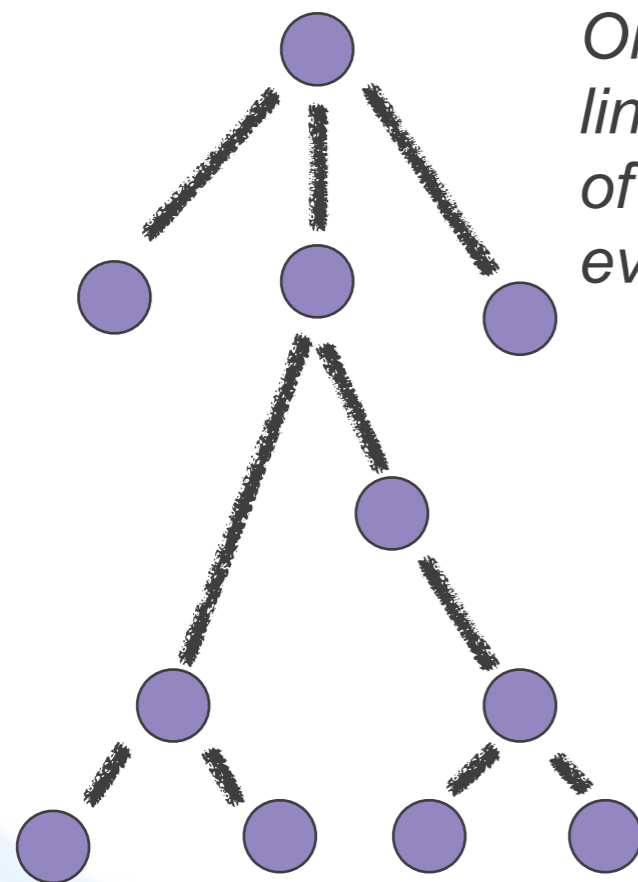
■ For libraries in new (GND?) format, we are making solution

- Clear hierarchy means deep URL's
- **New requirement:** DOI for each URL as needed for proper attribution (see cartoon on next page)

A proposal: DOI references in GND

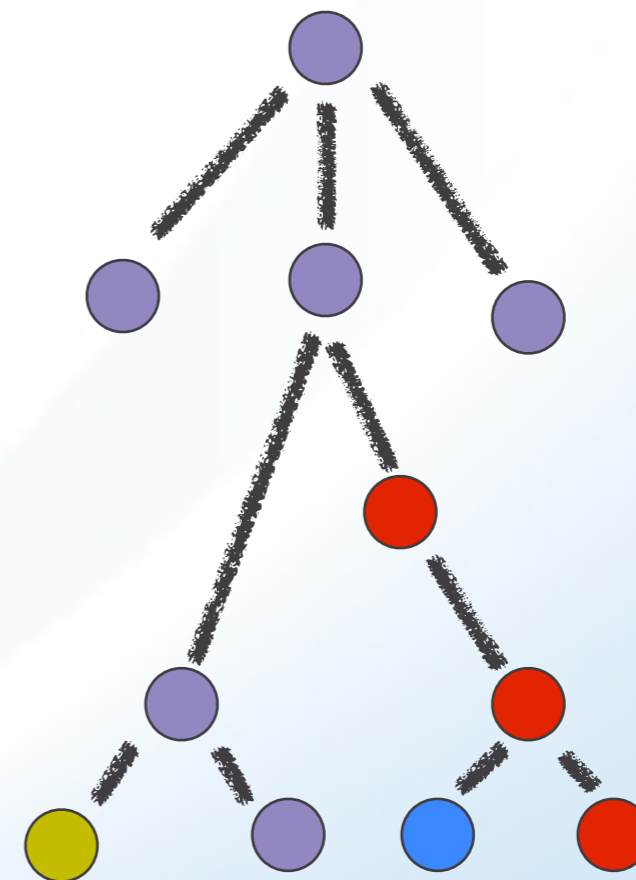


Monolithic evaluation; one DOI only



*One DOI,
linked to URL
of top node of
evaluation*

Frankenevaluation (built from other evaluations); DOI's for each unique contribution, linked to URL of contribution



*Four DOIs,
each linked to
URL of top
node of
individual
contribution*

Issues



- **Can other centers acquire DOI's for the data they are responsible for?**
- **Can other centers ensure that the URL's for their data (or tombstone pages for their data) are maintained "forever"?**
- **How should NNDC handle DOI's for borrowed evaluations and frankenevaluations?**
 - Option #1: take unilateral action and NNDC picks DOI's for all data
 - Option #2: delay delay delay until other centers ready
 - Option #3: ???