



Status of CSISRS/EXFOR compilation

Dimitri Rochman

National Nuclear Data Center

Brookhaven National Laboratory

drochman@bnl.gov

<http://www.nndc.bnl.gov/exfor>

Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY



Inside EXFOR

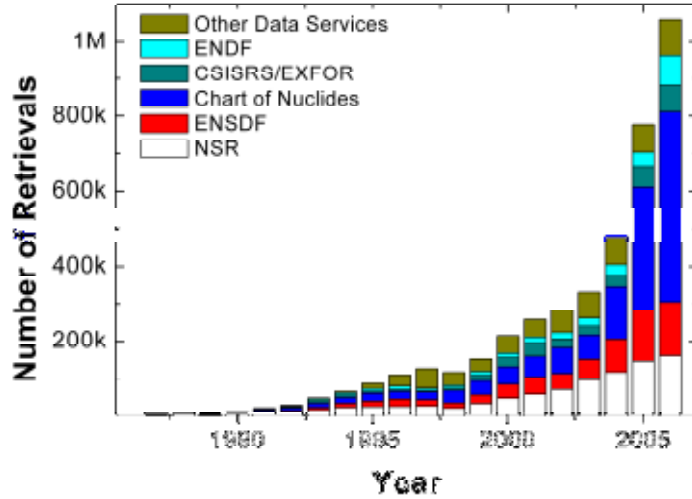
- Library for compilation of experimental nuclear data ($E < 1$ GeV)
- **4** main compilation centers (NNDC, NEA-db, NDS and IPPE)
- ~ **15** compilers worldwide
- More than **16 500** publications compiled since 1965
 - **9300** for n-reactions (80-90 % of publications)
 - **5700** for charged particles-reactions (45-55 % of publications)
 - **700** for g-reactions (15-20 % of publications)
- At NNDC, about **100** retrievals per day

Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY



NNDc Statistics

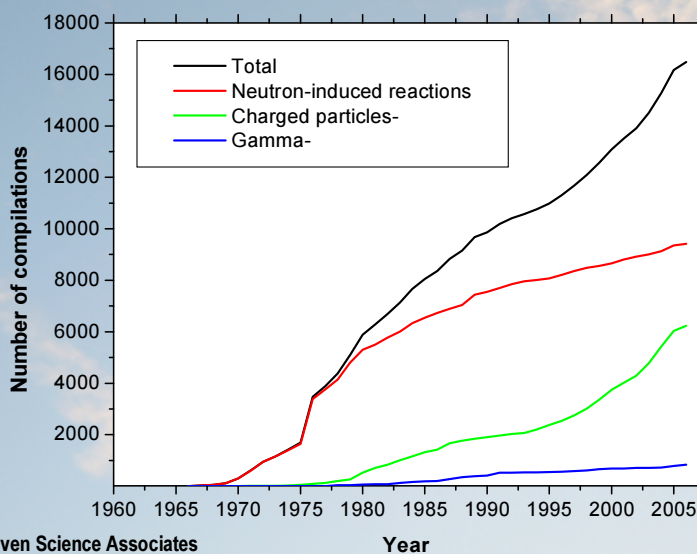


Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY



Compilation Effort

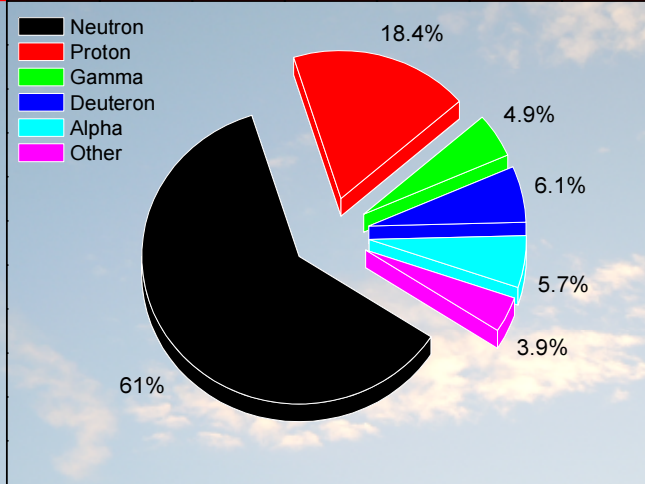


Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY



What is in EXFOR ?



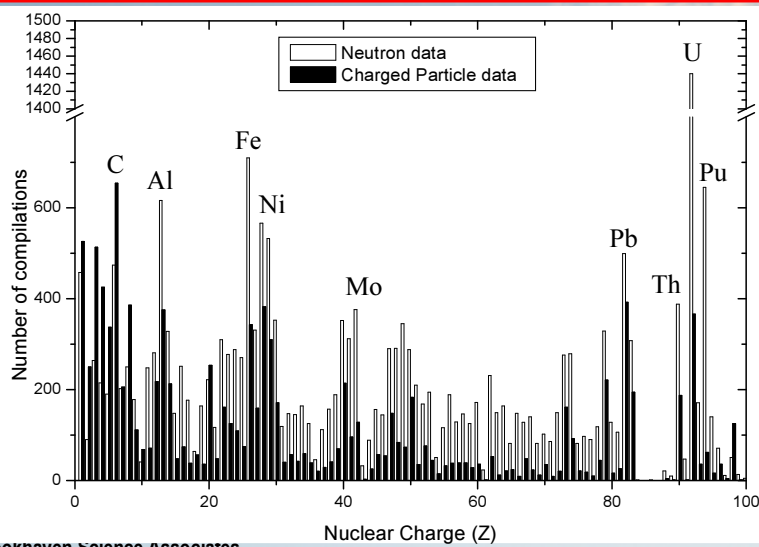
Particle-induced reactions

Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY



EXFOR Compilations



Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY



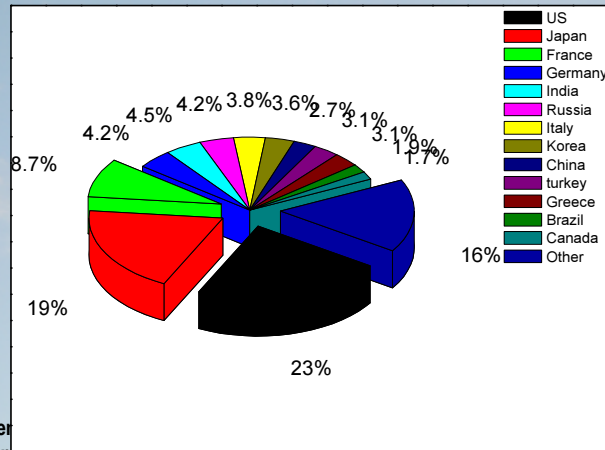
EXFOR Users from the World at NNDC

From November, 1st 2005 to July 31st 2006

1600 different users

15 500 successful retrievals

22 000 connections



Brookhaven
U.S. Department of Energy

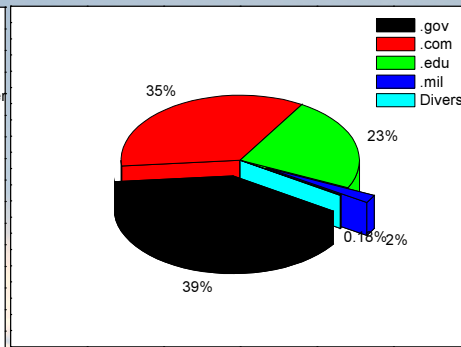
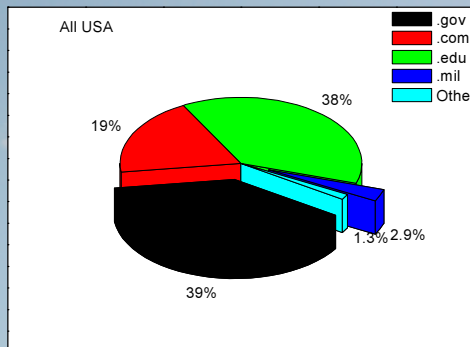
BROOKHAVEN
NATIONAL LABORATORY



Number of users (USA)

From November, 1st 2005 to July 31st 2006

From March 1st to Sept. 31, 2005



Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY



Number of retrievals (USA)

From November, 1st 2005 to July 31st 2006

US Government Organization	Retrievals %	US Military	Retrievals %
LANL	16.0	Navy+Army	2.4
LLNL	10.0	Pacific Northwest Nat. Lab.	0.5
LBL	5.0		
ORNL	5.0		
BNL	1.1		
ANL	-		
SANDIA	11.2		
NIST	0.3		
NASA	0.4		
DOE	-		
FNAL	-		
INEL	-		
KAPL	-		

From March 1st to Sept. 31, 2005

US Government Organization	Retrievals %	US Military	Retrievals %
LANL	19.3	Navy+Army	1.7
LLNL	6.1	Pacific Northwest Nat. Lab.	0.2
LBL	3.5		
ORNL	3.1		
BNL	1.7		
ANL	1.4		
SANDIA	1.0		
NIST	0.6		
NASA	0.3		
DOE	0.2		
FNAL	0.1		
INEL	0.1		
KAPL	0.1		

Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY



How is the interface used ?

From November, 1st 2005 to July 31st 2006

% of use
(combination allowed)

Target :	78 %
Reaction:	75 %
Quantity :	44 %
Author :	7 %
Product :	3 %
Accession:	9 %
Last Modified:	1 %
Area :	< 0.2 %
Publi. Year:	< 0.1 %
Energy :	Unknown

Brookhaven Science Associates
U.S. Department of Energy

From March 1st to Sept. 31, 2005

% of use
(combination allowed)

Target :	84 %
Reaction:	75 %
Quantity :	36 %
Author:	Unknown
Product :	28 %
Accession:	8 %
Last Modified:	1 %
Area :	< 0.1 %
Publi. Year:	< 0.1 %
Energy :	Unknown

BROOKHAVEN
NATIONAL LABORATORY



What are people looking for ?

Specific Reaction	NDS 2005	NNDC 2005	NNDC 2006
N,G	10.1	5.9	10.9
P,N	6.1	5.1	6.1
N,P	5.3	2.9	4.9
N,TOT	4.7	8.3	5.2
P,X	4.4	2.8	3.3
N,2N	4.0	3.3	3.2
N,F	3.6	2.4	4.5
N,INL	3.5	1.7	2.3
N,A	3.5	3.6	4.7
N,X	2.7	1.5	1.5
N,EL	2.1	4.3	2.4
G,N	1.9	2.6	2.6
N,D	1.4	0.4	0.6
N,N+P	1.3	0.3	0.4
D,N	1.2	2.6	2.6
Other	44.2	52.2	44.7

Induced reaction	Retrievals		
	%		
	NNDC 2005	NNDC 2006	NDS 2005
Neutron	40.0	38.3	47.7
Proton	20.0	20.2	17.7
Deuteron	11.5	7.2	2.9
Alpha	13.7	5.4	3
Gamma	5.8	5.4	2.4
Other	9.0	23	26.3

Brookhaven Science Associates
U.S. Department of Energy



What are people looking for ?

Quantity		Retrievals		
		%		
		NNDC 2005	NNDC 2006	NDS 2005
CS	Cross section data	79.00	82.37	67.85
DA	Differential data with respect to angle	9.01	6.44	7.49
DAE	Differential data with respect to angle and energy	2.32	2.60	3.33
DE	Differential data with respect to energy	2.18	2.64	2.84
RP	Resonance parameters	1.46	1.85	0.50
TT	Thick target yields	1.35	0.08	1.89
SP	Gamma spectra	1.07	0.09	0.90
CSP	Partial cross section data	0.94	1.54	4.35
RI	Resonance integrals	0.90	0.04	0.80
FY	Fission product yields	0.76	1.99	2.17
DAP	Partial differential data with respect to angle	0.25	0.08	1.16
DEP	Partial differential data with respect to energy	0.25	0.00	1.11
PY	Product yields	0.23	0.08	0.99
MFQ	Miscellaneous fission quantities	0.18	0.04	0.50
E	Kinetic energies	0.17	0.00	0.50
COR	Secondary particle correlations	0.14	0.00	0.50
RR	Reaction rates	0.11	0.03	0.19
NQ	Nuclear quantities	0.11	0.03	0.17
POL	Polarization data	0.08	0.05	0.12
CST	Temperature dependent cross section data	0.04	0.00	0.02
TTD	Differential thick target yields	0.03	0.03	1.13
TTP	Partial thick target yields	0.03	0.04	1.09
L	Scattering amplitudes	0.00	0.00	0.02

Brookhaven Science Associates
U.S. Department of Energy

