

(資料)

## 2006年度入力データ Data-Entries of 2006

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### 1 今年度入力論文リスト

今年度は以下の雑誌からデータの収集を行った。データの収録にあたっては多くの著者の方々の貴重な協力が得ることができ、これにより質の高いデータ収集を実施することができた。今後とも、著者との協力体制を強化して、著者の持つ数値データを直接入力する努力を続けていきたい。

- Physical Review Letters
- Physical Review C
- Nuclear Instrument and Methods in Physics Research B
- Nuclear Instrument and Methods in Physics Research A
- Journal of the Physical Society of Japan
- Nuclear Physics A
- Bulletin of the Chemical Society of Japan
- Journal of Nuclear Materials
- Journal of Radioanalytical and Nuclear Chemistry
- Applied Radiation and Isotopes
- Radiochimica Acta
- Physics Letters, Section B
- European Physical Journal A
- Conf. on Nucl. Data for Sci. and Techn., Santa Fe 2004
- Journal of Nuclear Science and Technology - Supplement
- Radiochemical and Radioanalytical Letters
- Fusion Science and Technology
- Journal of Nuclear and Radiochemical Sciences
- Journal of Nuclear Science and Technology

今年度の収集論文全 45 編のリストを以下に示す。

#### Data 1961

Title Production of  $^{61}\text{Cu}$  by alpha and  $^3\text{He}$  bombardment on cobalt target  
Author Y.Homma *et al.*  
Reference Bull. Chem. Soc. Jpn. **50** (1977) 1251  
Table Total : 14 EXFOR : 14 Author : 0 Table : 0 Curve : 14 Unobt : 0

#### Data 1962

Title Resonant structures in spin alignment in the  $^{12}\text{C}+^{16}\text{O}$  inelastic scattering  
Author T.Sugimitsu *et al.*  
Reference Nucl. Phys. A **736** (2004) 3  
Table Total : 8 EXFOR : 8 Author : 8 Table : 0 Curve : 0 Unobt : 0

#### Data 1963

Title Excitation functions for  $^3\text{He}$ -induced reactions on silver  
Author T.Omori *et al.*  
Reference Radiochem. Radioanal. Lett. **44** (1980) 307  
Table Total : 8 EXFOR : 8 Author : 0 Table : 3 Curve : 5 Unobt : 0

#### Data 1964

Title Induced radioactivity of component materials by 16-MeV protons and 30-MeV alpha particles  
Author K.Abe *et al.*  
Reference J. Nucl. Mater. **123** (1984) 972  
Table Total : 96 EXFOR : 96 Author : 0 Table : 96 Curve : 0 Unobt : 0

#### Data 1965

Title Proton activation analysis of trace impurities in purified cobalt  
Author M.Isshiki *et al.*  
Reference J. Radioanal. Nucl. Chem. **82** (1984) 135  
Table Total : 18 EXFOR : 18 Author : 0 Table : 18 Curve : 0 Unobt : 0

#### Data 1966

Title The radioactivation analysis of semiconductor graphite for nitrogen by the  $^{14}\text{N}(p,a)^{11}\text{C}$  reaction  
Author T.Nozaki *et al.*  
Reference Bull. Chem. Soc. Jpn. **39** (1966) 2685  
Table Total : 2 EXFOR : 2 Author : 0 Table : 0 Curve : 2 Unobt : 0

**Data 1967**

Title Excitation functions for the production of  $^{81}\text{Rb}$ - $^{81\text{m}}\text{Kr}$  via the  $^{79}\text{Br}(\alpha, 2n)^{81}\text{Rb}$  and the  $^{81}\text{Br}(^3\text{He}, 3n)^{81}\text{Rb}$  reactions  
Author Y.Homma *et al.*  
Reference Appl. Radiat. Isot. **30** (1979) 345  
Table Total : 12 EXFOR : 12 Author : 0 Table : 4 Curve : 8 Unobt : 0

**Data 1968**

Title Excitation functions of  $\text{Ge}(p, xnyp)$  reactions and production of  $^{68}\text{Ge}$   
Author T.Horiguchi *et al.*  
Reference Appl. Radiat. Isot. **34** (1983) 1531  
Table Total : 10 EXFOR : 10 Author : 0 Table : 1 Curve : 9 Unobt : 0

**Data 1969**

Title Target dependence of beryllium fragment production in neutron- and alpha-induced nuclear reactions at intermediate energies  
Author H.Matsumura *et al.*  
Reference Radiochim. Acta. **93** (2005) 497  
Table Total : 8 EXFOR : 8 Author : 0 Table : 8 Curve : 0 Unobt : 0

**Data 1970**

Title Deuteron break-up in the fields of nuclei at 56 MeV  
Author N.Matsuoka *et al.*  
Reference Nucl. Phys. A **345** (1980) 1  
Table Total : 29 EXFOR : 29 Author : 0 Table : 0 Curve : 29 Unobt : 0

**Data 1971**

Title Study of the pionic enhancement in  $^{16}\text{O}(p, p')^{16}\text{O}$  ( $0^-, T=1$ ) at 295 MeV  
Author T.Wakasa *et al.*  
Reference Phys. Lett. B **632** (2006) 485  
Table Total : 4 EXFOR : 4 Author : 0 Table : 0 Curve : 4 Unobt : 0

**Data 1972**

Title Role of multi-step processes in  $^{16}\text{O}(^{11}\text{B}, ^{12}\text{C})^{15}\text{N}$  at 41.25 MeV  
Author N.Ikeda *et al.*  
Reference Eur. Phys. J. A **9** (2000) 213  
Table Total : 7 EXFOR : 5 Author : 0 Table : 1 Curve : 6 Unobt : 0

**Data 1973**

Title Measurement of differential thick target neutron yields (TTY) from Fe, Cu(p,n) reactions at 35, 50, and 70 MeV  
Author T.Itoga *et al.*  
Reference 2004SANTA (2004) 1568  
Table Total : 30 EXFOR : 30 Author : 30 Table : 0 Curve : 0 Unobt : 0

**Data 1974**

Title Primary fragment mass-yield distributions for asymmetric fission path of heavy nuclei  
Author Y.L.Zhao *et al.*  
Reference J. Radioanal. Nucl. Chem. **255** (2003) 67  
Table Total : 6 EXFOR : 6 Author : 0 Table : 0 Curve : 6 Unobt : 0

**Data 1975**

Title Production possibility of  $^{61}\text{Cu}$  using proton induced nuclear reactions on zinc for PET studies  
Author F.Szelecsenyi *et al.*  
Reference J. Radioanal. Nucl. Chem. **263** (2005) 539  
Table Total : 4 EXFOR : 4 Author : 0 Table : 4 Curve : 0 Unobt : 0

**Data 1976**

Title Experiment on elastic scattering of protons by  $^{18}\text{O}$   
Author K.Yagi *et al.*  
Reference J. Phys. Soc. Jpn. **17** (1962) 595  
Table Total : 10 EXFOR : 10 Author : 0 Table : 0 Curve : 10 Unobt : 0

**Data 1977**

Title 90 deg- excitation functions for the  $^{14}\text{N}(\text{d},\alpha)^{12}\text{C}$  ground-state and first excited state reactions  
Author T.Ishimatsu *et al.*  
Reference J. Phys. Soc. Jpn. **17** (1962) 1189  
Table Total : 2 EXFOR : 2 Author : 0 Table : 0 Curve : 2 Unobt : 0

**Data 1978**

Title Secondary neutron-production cross sections from heavy-ion interactions in composite targets  
Author L.Heilbronn *et al.*  
Reference Phys. Rev. C **73** (2006) 024603  
Table Total : 27 EXFOR : 27 Author : 24 Table : 3 Curve : 0 Unobt : 0

### Data 1979

Title Measurements of evaporation residue cross sections for the fusion reactions  
86Kr+134Ba and 86Kr+138Ba  
Author K.Satou *et al.*  
Reference Phys. Rev. C **73** (2006) 034609  
Table Total : 7 EXFOR : 7 Author : 0 Table : 7 Curve : 0 Unobt : 0

### Data 1980

Title Strong sequential transfer processes in  $0^+ \rightarrow 0^+$  (p,t) reactions on Pb isotopes  
Author Y.Toba *et al.*  
Reference Phys. Lett. B **100** (1981) 232  
Table Total : 8 EXFOR : 8 Author : 0 Table : 8 Curve : 0 Unobt : 0

### Data 1981

Title Measurement of excitation functions of the proton-induced activation reactions  
on tantalum in the energy range 28-70 MeV  
Author M.S.Uddin *et al.*  
Reference J. Nucl. Sci. Tech. Suppl. **4** (2004) 160  
Table Total : 8 EXFOR : 8 Author : 8 Table : 0 Curve : 0 Unobt : 0

### Data 1982

Title Proton inelastic scattering studies at the borders of the 'island of inversion'  
Author Z.Elekes *et al.*  
Reference Phys. Rev. C **73** (2006) 044314  
Table Total : 4 EXFOR : 4 Author : 0 Table : 4 Curve : 0 Unobt : 0

### Data 1983

Title 'Bi-modal' isoscalar giant dipole strength in 58Ni  
Author B.K.Nayak *et al.*  
Reference Phys. Lett. B **637** (2006) 43  
Table Total : 8 EXFOR : 5 Author : 5 Table : 0 Curve : 3 Unobt : 0

### Data 1984

Title Measurements of the interaction cross-sections for 14Be and 14,15B as projectiles  
with a new scheme at RIBLL  
Author A.Ozawa *et al.*  
Reference Nucl. Instrum. Meth. B **247** (2006) 155  
Table Total : 3 EXFOR : 3 Author : 3 Table : 0 Curve : 0 Unobt : 0

**Data 1985**

Title Experimental studies on the neutron emission spectrum and activation cross-section for 40 MeV deuterons in IFMIF accelerator structural elements  
Author M.Hagiwara *et al.*  
Reference J. Nucl. Mater. **329** (2004) 218  
Table Total : 6 EXFOR : 6 Author : 6 Table : 0 Curve : 0 Unobt : 0

**Data 1986**

Title Measurement of neutron emission spectra in Li(d,xn) reaction with thick and thin targets for 40-MeV deuterons  
Author M.Hagiwara *et al.*  
Reference Fusion Sci. Technol. **48** (2005) 1320  
Table Total : 4 EXFOR : 4 Author : 4 Table : 0 Curve : 0 Unobt : 0

**Data 1987**

Title First experiment of  $^6\text{He}$  with a polarized proton target  
Author M.Hatano *et al.*  
Reference Eur. Phys. J. A Suppl. **25** (2005) 255  
Table Total : 3 EXFOR : 2 Author : 2 Table : 1 Curve : 0 Unobt : 0

**Data 1988**

Title Measurements of deuteron-induced activation cross-sections for IFMIF accelerator structural materials  
Author M.Nakao *et al.*  
Reference Nucl. Instrum. Meth. A **562** (2006) 785  
Table Total : 10 EXFOR : 10 Author : 10 Table : 0 Curve : 0 Unobt : 0

**Data 1989**

Title Measurement of neutron spectra produced in the forward direction from thick graphite, Al, Fe and Pb targets bombarded by 350 MeV protons  
Author Y.Iwamoto *et al.*  
Reference Nucl. Instrum. Meth. A **562** (2006) 789  
Table Total : 4 EXFOR : 4 Author : 4 Table : 0 Curve : 0 Unobt : 0

**Data 1990**

Title Proton single-particle states in the neutron-rich  $^{23}\text{F}$  nucleus  
Author S.Michimasa *et al.*  
Reference Phys. Lett. B **638** (2006) 146  
Table Total : 2 EXFOR : 2 Author : 2 Table : 0 Curve : 0 Unobt : 0

**Data 1991**

Title Observation of strong low-lying E1 strength in the two-neutron halo nucleus  $^{11}\text{Li}$   
Author T.Nakamura *et al.*  
Reference Phys. Rev. Lett. **96** (2006) 252502  
Table Total : 4 EXFOR : 3 Author : 3 Table : 1 Curve : 0 Unobt : 0

**Data 1992**

Title Scattering of  $^{11}\text{Be}$  halo nucleus from  $^{209}\text{Bi}$  at the Coulomb barrier  
Author M.Mazzocco *et al.*  
Reference Eur. Phys. J. A **28** (2006) 295  
Table Total : 2 EXFOR : 1 Author : 0 Table : 2 Curve : 0 Unobt : 0

**Data 1993**

Title Excitation of dipole resonances in  $^4\text{He}$  and in the alpha clusters of  $^6\text{Li}$  and  $^7\text{Li}$   
Author T.Yamagata *et al.*  
Reference Phys. Rev. C **74** (2006) 014309  
Table Total : 5 EXFOR : 4 Author : 4 Table : 1 Curve : 0 Unobt : 0

**Data 1994**

Title Production cross sections of  $^{261}\text{Rf}$  and  $^{262}\text{Db}$  in bombardments of  $^{248}\text{Cm}$  with  $^{18}\text{O}$  and  $^{19}\text{F}$  ions  
Author Y.Nagame *et al.*  
Reference J. Nucl. Radiochem. Sci. **3** (2002) 85  
Table Total : 2 EXFOR : 2 Author : 0 Table : 2 Curve : 0 Unobt : 0

**Data 1995**

Title Gamow-Teller strengths in the  $A = 14$  multiplet  
Author A.Negret *et al.*  
Reference Phys. Rev. Lett. **97** (2006) 062502  
Table Total : 18 EXFOR : 18 Author : 0 Table : 0 Curve : 16 Unobt : 2

**Data 1996**

Title Alpha beam monitoring via  $^{nat}\text{Cu}$  + alpha processes in the energy range from 40 to 60 MeV  
Author F.Szelecsenyi *et al.*  
Reference Nucl. Instrum. Meth. B **184** (2001) 589  
Table Total : 3 EXFOR : 3 Author : 0 Table : 3 Curve : 0 Unobt : 0

**Data 1997**

Title The (t,<sup>3</sup>He) and (<sup>3</sup>He,t) reactions as probes of Gamow-Teller strength  
Author R.G.T.Zegers *et al.*  
Reference Phys. Rev. C **74** (2006) 024309  
Table Total : 18 EXFOR : 16 Author : 0 Table : 2 Curve : 10 Unobt : 6

**Data 1998**

Title Bound excited states in <sup>27</sup>F  
Author Z.Elekes *et al.*  
Reference Phys. Lett. B **599** (2004) 17  
Table Total : 1 EXFOR : 1 Author : 0 Table : 1 Curve : 0 Unobt : 0

**Data 1999**

Title A neutron polarimeter for the (p,n) reaction at Ep=50-80 MeV  
Author H.Sakai *et al.*  
Reference Nucl. Instrum. Meth. A **257** (1987) 279  
Table Total : 1 EXFOR : 1 Author : 0 Table : 0 Curve : 1 Unobt : 0

**Data 2000**

Title Absorption and forward scattering of antiprotons by C, Al, and Cu nuclei in the region 470-880 MeV/c  
Author K.Nakamura *et al.*  
Reference Phys. Rev. Lett. **52** (1984) 731  
Table Total : 24 EXFOR : 21 Author : 18 Table : 6 Curve : 0 Unobt : 0

**Data 2001**

Title Super high resolution measurement of fine structure in the total photonuclear cross section of <sup>13</sup>C  
Author H.Harada *et al.*  
Reference J. Nucl. Sci. Tech. **35** (1998) 733  
Table Total : 2 EXFOR : 2 Author : 1 Table : 1 Curve : 0 Unobt : 0

**Data 2002**

Title Fine structure of giant resonance in the <sup>28</sup>Si(g,abs) reaction  
Author H.Harada *et al.*  
Reference J. Nucl. Sci. Tech. **38** (2001) 465  
Table Total : 2 EXFOR : 2 Author : 1 Table : 1 Curve : 0 Unobt : 0

### Data 2003

Title Photodisintegration of  $^9\text{Be}$  with laser-induced Compton backscattered gamma rays  
Author H.Utsunomiya *et al.*  
Reference Phys. Rev. C **63** (2001) 018801  
Table Total : 3 EXFOR : 3 Author : 2 Table : 1 Curve : 0 Unobt : 0

### Data 2004

Title Astrophysical reaction rate for alpha ( $\alpha$  n,  $\gamma$ ) $^9\text{Be}$  by photodisintegration  
Author K.Sumiyoshi *et al.*  
Reference Nucl. Phys. A **709** (2002) 467  
Table Total : 4 EXFOR : 4 Author : 3 Table : 1 Curve : 0 Unobt : 0

### Data 2005

Title New data for  $^3\text{He}(\gamma, p)\text{D}$  and  $^3\text{He}(\gamma, pp)n$  cross sections compared to current theory  
Author S.Naito *et al.*  
Reference Phys. Rev. C **73** (2006) 034003  
Table Total : 4 EXFOR : 4 Author : 0 Table : 4 Curve : 0 Unobt : 0

今年度入力データに使用された加速器の設置されている研究所ごとの論文件数の内訳は以下のとおりである。

イテンバ研究所 (南アフリカ)	1 件	大阪大学核物理研究センター	9 件
高エネルギー加速器研究機構	1 件	筑波大学	1 件
東京大学	2 件	東京大学原子核研究所	1 件
東北大学	7 件	日本原子力研究開発機構	4 件
産業技術総合研究所	3 件	電子技術総合研究所	2 件
放射線医学総合研究所	4 件	理化学研究所	8 件
九州大学	2 件	ミシガン州立大学	1 件
フーニンゲン核物理加速器研究所	1 件	中国科学院現代物理学研究所 (蘭州)	1 件

## 2 NRDF データ量

表1は、NRDFに入力されたデータ量を各年度ごとに示したものである。また、そのあとに示された図1、2は、各年度毎の入力レコード数とデータ量、およびこれらの累積量を示す。

表 1: NRDF データ蓄積量

年度	作成計画		実績		累積	
	レコード量 (レコード数)	データ量 (MB)	レコード量 (レコード数)	データ量 (MB)	レコード量 (レコード数)	データ量 (MB)
1980	—	—	2,144	5.96	2,144	5.96
1981	1,912	5.74	1,824	6.81	3,968	12.77
1982	2,080	7.14	1,801	6.52	5,769	19.29
1983	2,200	7.00	2,252	6.53	8,021	25.82
1984	1,700	5.60	1,703	5.03	9,724	30.85
1985	1,800	5.60	2,170	5.50	11,894	36.35
1986	1,000	3.20	962	3.14	12,856	39.49
1987	1,100	3.50	1,364	3.16	14,220	42.65
1988	1,500	3.50	1,384	3.30	15,604	45.95
1989	1,500	3.20	1,224	3.20	16,828	49.15
1990	1,200	3.20	1,282	2.90	18,110	52.05
1991	1,000	3.00	789	2.20	18,899	54.25
1992	1,000	3.00	1,620	3.00	20,519	57.25
1993	1,000	3.00	1,096	3.09	21,615	60.34
1994	1,000	3.00	1,328	3.00	22,943	63.34
1995	1,000	3.00	200	3.00	23,143	66.34
1997	1,000	3.00	595	1.60	24,914	70.93
1998	1,000	3.00	196	0.53	25,110	71.46
1999	1,000	3.00	457	1.20	25,567	72.66
2000	1,000	3.00	95	0.30	25,662	72.96
2001	1,000	3.00	360	2.20	26,022	75.16
2002	1,000	3.00	717	3.22	26,739	78.38
2003	1,000	3.00	984	6.85	27,723	85.23
2004	1,000	3.00	540	2.12	28,263	87.35
2005	1,000	3.00	631	1.80	28,894	89.15
2006	1,000	3.00	453	1.83	29,347	90.98

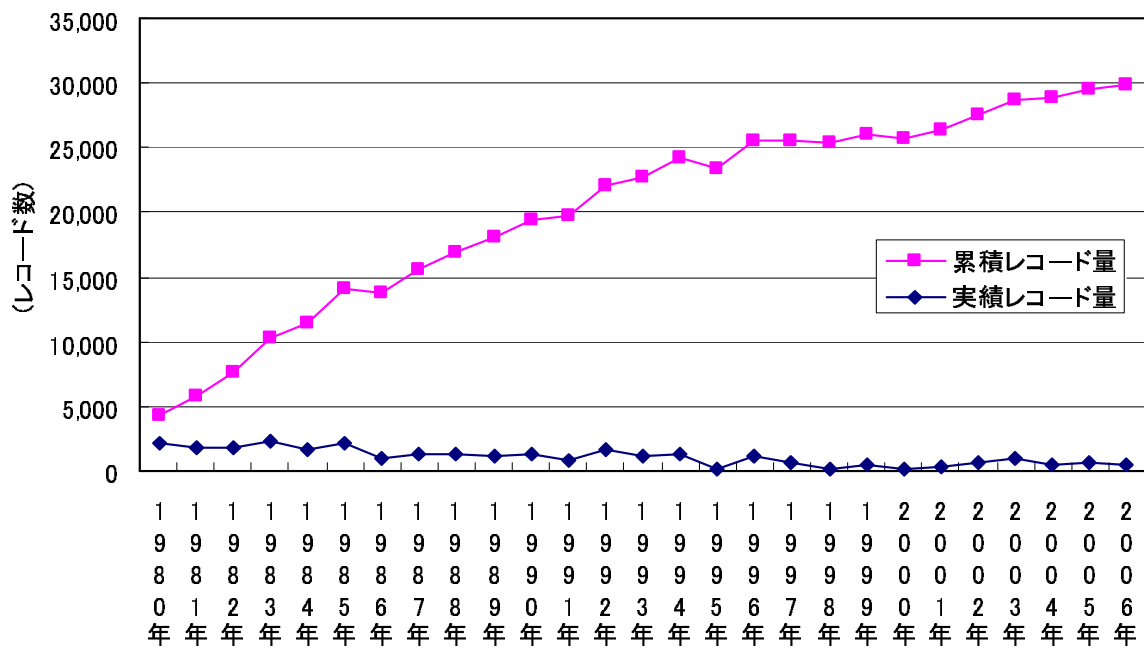


図 1: NRDF 各年度収録実績レコード数と累積レコード数

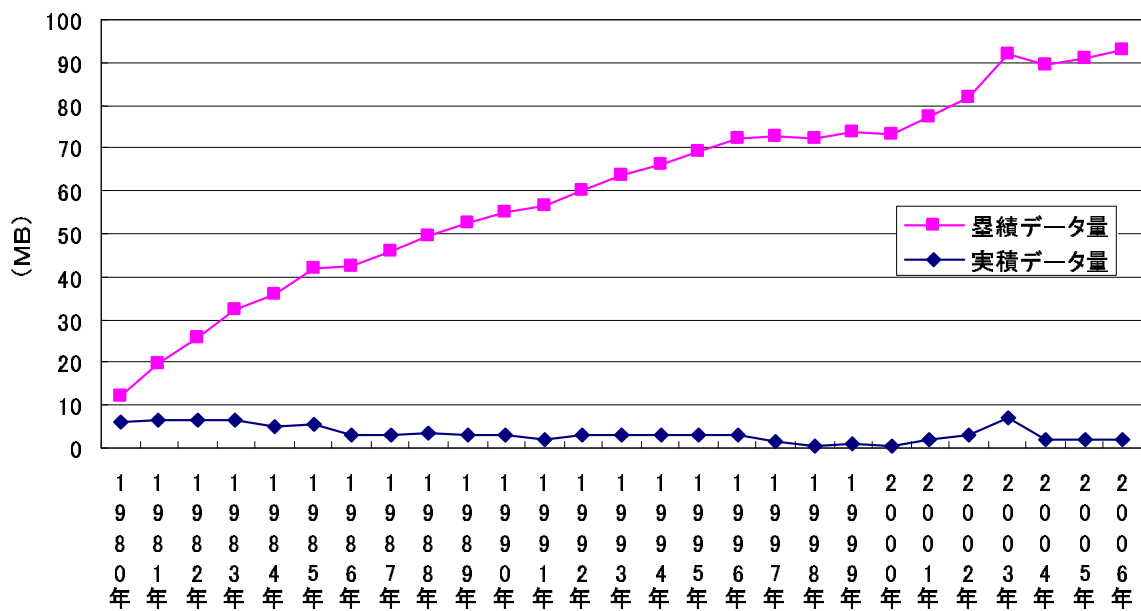


図 2: NRDF 各年度収録実績データ量と累積データ量

