

## VII. PUBLICATIONS

Since 1967, the institute published the Annual Report of the KURRI, containing the original papers written by researchers of the institute and users of other organizations. It played an important role in showing the activities of the institute. However, due to a variety of research fields covered by researchers in the institute, it became difficult to contain all the original papers. Therefore, the Annual Report was discontinued in 1995. The Progress Report of the KURRI has been issued from 1991 in English and summarizes the abstracts of the published papers, reviews, book titles and current research activities of the KURRI. The Technical Report of the KURRI (KURRI-TR) has been issued occasionally from 1965. It contains technical data in Japanese with English summaries. The KUR Report (KURRI-KR), issued in Japanese since 1996, is the proceedings of symposia and technical meetings held at the institute. Furthermore, the CD-ROM version (KURRI-KR(CD)) has been issued from 2004.

### The Technical Report of the KURRI(KURRI-TR)

- KURRI-TR-437 The Educational Documents of Operation Management for the Kyoto-University Nuclear Reactor Facility (Experience of Operation and Management for 40 years (No.2))(2008)
- KURRI-TR-438 Experimental Training of Reactor Physics for Technical Staff Using Kyoto University Critical Assembly (2009)

### The KUR Report (KURRI-KR)

- KURRI-KR-138 Proceedings of the Specialist Research Meeting on Internationalization on the Utilization of Neutron Activation Analysis (2008)
- KURRI-KR-139 Multi-side Approach to the Realities of the Chernobyl NPP Accident - Summing-up of the Consequences of the Accident Twenty Years After(II) - (2008)
- KURRI-KR-140 Proceedings of Specialists' Meeting on the Chemistry and Technology of Actinide Elements 2006 (2008)
- KURRI-KR-141 Proceedings of Specialists' Meeting on the Chemistry and Technology of Actinide Elements 2007 (2008)
- KURRI-KR-142 Proceedings of the 16th Technical Meeting on Nuclear Reactor and Radiation for KURRI Engineers and the 7th Technical Official Group Section V Meeting in Kyoto University (2008)
- KURRI-KR-143 Proceedings of the Meeting on the Future Project of Kyoto University Research Reactor Institute (2009)
- KURRI-KR-144 Proceedings of the Specialists' Meeting on Radioactive Wastes Management (2009)
- KURRI-KR-145 Proceedings of the Specialist Research Meeting on "Condensed Matter Physics Research Using Short-Lived Nuclei and Radiations" (2009)
- KURRI-KR-146 Proceedings of Specialists' Meeting on the Chemistry and Technology of Actinide Elements 2008 (2009)
- KURRI-KR-147 Proceedings of the 17th Technical Meeting on Nuclear Reactor and Radiation for KURRI Engineers and the 8th Technical Official Group Section V Meeting in Kyoto University (2009)
- KURRI-KR-148 Proceedings of the Specialist Research Meeting on "Abnormal Protein Aggregation and the Folding Diseases, and Their Protection and Repair System" (2009)

### The KUR Report (CD) (KURRI-KR (CD))

- KURRI-KR(CD)-18 Proceedings of the Workshop on Clarification of Materials Irradiation Effects and Improvement of Irradiation Techniques (2008)
- KURRI-KR(CD)-19 Proceedings of the Specialist Meeting on Positron Annihilation Study for Science and Engineering 2007 (2008)
- KURRI-KR(CD)-20 Specialists' Meeting on Neutron Imaging (2009)
- KURRI-KR(CD)-21 Proceedings of the Workshop on the Development and Applications of Devices for Neutrons II (2009)
- KURRI-KR(CD)-22 Proceedings of the 2nd Specialist Research Meeting on MIEZE/N(R)SE Spectroscopy (2009)

## Publication List (April 2008—March 2009)

(\* The Results of Research that an Outside Researcher Carried out Originally in RRI.)

### 1. Slow Neutron Physics and Neutron Scattering

#### Papers

Preliminary Time-of-Flight Neutron Diffraction Study of Human Deoxyhemoglobin

A.Y. Kovalevsky, T. Chatake, N. Shibayama, S.-Y. Park, T. Ishikawa, M. Mustyakimov, S.Z. Fisher, P. Langan and Y. Morimoto

Acta. Crystallogr. F, **64** (2008) 270-273.

An Abnormal pKa Value of Internal Histidine of the Insulin Molecule Revealed by Neutron Crystallographic Analysis

T. Ishikawa, T. Chatake, Y. Morimoto, M. Maeda, K. Kurihara, I. Tanaka and N. Niimura

Biochem. Biophys. Res. Co., **376** (2008) 32-35.

Characterization of Hydrogen Absorption/Desorption States on Lithium-Carbon-Hydrogen System by Neutron Diffraction

H. Miyaoka, K. Itoh, T. Fukunaga, T. Ichikawa, Y. Kojima and H. Fuji

J. Appl. Phys., **104**[5] (2008) 053511.

A New Analysing Approach for the Structure of Density Fluctuation of Supercritical Fluid

T. Sato, M. Sugiyama, M. Misawa, S. Takata, T. Otomo, K. Itoh, K. Mori and T. Fukunaga

J. Phys.-Condens. Mat., **20**[10] (2008) 104203.

Hydrogen Bonds of DsrD Protein Revealed by Neutron Crystallography

T. Chatake, Y. Higuchi, N. Mizuno, I. Tanaka, N. Niimura and Y. Morimoto

J. Synchrotron Radiat., **15** (2008) 277-280.

Structural Difference between Liquid-Like and Gas-Like Phases in Supercritical Fluid

T. Sato, M. Sugiyama, K. Hamada, K. Itoh, K. Mori, T. Fukunaga, M. Misawa, T. Ohtomo and S. Takata

Phys. Rev. E, **78** (2008) 051503.

Characterization of the Interface Structure of Hydrophilic and Hydrophobic Polymer Brushes by Neutron Beam and Synchrotron Radiation

H. Yamaguchi, Y. Terayama, K. Honda, M. Kobayashi, O. Sakata, M. Tanaka, S. Sakaki, N. Torikai, M. Hino, K. Ishihara and A. Takahara

Trans. Mater. Res. Soc. Jpn., **33**[3] (2008) 573-577.

Comprehensive Structural Study of Glassy and Metastable Crystalline BaTi<sub>2</sub>O<sub>5</sub>

J. Yu, S. Kohara, K. Itoh, S. Nozawa, S. Miyoshi, Y. Arai, A. Masuno, H. Taniguchi, M. Itoh, M. Takata, T. Fukunaga, S. Koshihara, Y. Kuroiwa and S. Yoda

Chem. Mater., **21**[2] (2009) 259-263.

A New MIEZE Technique for Investigating Relaxation of Magnetic Nanoparticles

H. Hayashida, M. Hino, M. Kitaguchi, N. Achiwa and Y. Kawabata

Nucl. Instrum. Meth. A, **600** (2009) 56-59.

Development of Devices for Beam Divergence Correction in the High-Resolution NRSE Spectrometer

M. Kitaguchi, M. Hino, Y. Kawabata, H. Hayashida, S. Tasaki, R. Maruyama and T. Ebisawa

Nucl. Instrum. Meth. A, **600** (2009) 117 -119.

Shield Evaluation of Cold Neutron Curved Guide Tube for J-PARC Neutron Resonance Spin Echo Spectrometers

T. Ebisawa, K. Soyama, D. Yamazaki, R. Maruyama, S. Tasaki, Y. Abe, H. Hayashida, M. Hino, M. Kitaguchi, Y. Kawabata and K. Niita

Nucl. Instrum. Meth. A, **600** (2009) 126-128.

A Study on Reflectivity Limit of Neutron Supermirror

M. Hino, M. Kitaguchi, H. Hayashida, S. Tasaki, T. Ebisawa, R. Maruyama, N. Achiwa and Y. Kawabata

Nucl. Instrum. Meth. A, **600** (2009) 207-209.

Design of Neutron Beamline for Fundamental Physics at J-PARC BL05

K. Mishima, T. Ino, K. Sakai, T. Shinohara, K. Hirota, K. Ikeda, H. Sato, Y. Otake, H. Ohmori, S. Muto, N. Higashi, T. Morishima, M. Kitaguchi, M. Hino, H. Funahashi, T. Shima, J. Suzuki, K. Niita, K. Taketani, Y. Seki and H.M. Shimizu

Nucl. Instrum. Meth. A, **600** (2009) 342- 345.

First Measurement of the Neutron Beta Asymmetry with Ultracold Neutrons

R.W. Pattie, Jr., J. Anaya, H.O. Back, J.G. Boissevain, T.J. Bowles, L.J. Broussard, R. Carr, D.J. Clark, S. Currie, S. Du, B.W. Filippone, P. Geltenbort, A. Garcia, A. Hawari, K.P. Hickerson, R. Hill, M. Hino, S.A. Hoedl, G.E. Hogan, A.T. Holley, T.M. Ito, T. Kawai, K. Kirch, S. Kitagaki, S.K. Lamoreaux, C.-Y. Liu, J. Liu, M. Makela, R.R. Mammei, J.W. Martin, D. Melconian, N. Meier, M.P. Mendenhall, C.L. Morris, R. Mortensen, A. Pichlmaier, M.L. Pitt, B. Plaster, J.C. Ramsey, R. Rios, K. Sabourov, A.L. Sallaska, A. Saunders, R. Schmid, S. Seestrom, C. Servicky, S.K.L. Sjue, D. Smith, W.E. Sondheim, E. Tatar, W. Teasdale, C. Terai, B. Tipton, M. Utsuro, R.B. Vogelaar, B.W. Wehring, Y.P. Xu, A.R. Young and J. Yuan

Phys. Rev. Lett., **102** (2009) 012301(4pages).

## Proceedings

Time-of-Flight Neutron Diffraction Study of Human Deoxyhemoglobin

A. Y. Kovalevsky, T. Chatake, T. Ishikawa, N. Shibayama, S.-Y. Park, M. Mustyakimov, P. Langan and Y. Morimoto

ACA 2008 (Meeting of the American Crystallographic Association), Knoxville, Tennessee, USA, May 31-June 5, 2008, SP179.

Density of Lubricant near Surfaces Having Various Wettabilities In-situ Measured by Neutron Reflectometry

T. Hirayama, T. Uno, T. Torii, T. Matsuoka, K. Inoue, T. Ebisawa, S. Tasaki, M. Hino and N. Torikai

Proc. 63rd Annual Meeting & Exhibition STLE Cleveland, Ohio, USA, May 18-22, 2008 (on CD-ROM).

Structure Analysis of Interface between DLC Films Having Various Wettabilities and Lubricants Using Neutron Reflectometry

T. Hirayama, T. Torii, T. Matsuoka, K. Inoue, T. Ebisawa, S. Tasaki, M. Hino and N. Torikai

Proc. STLE/ASME International Joint Tribology Conference, Maimi, Florida, USA, Oct. 20-22, 2008 (on CD-ROM).

Crystal Structure of Z-DNA d(CGCGCG) Complexed with Ca<sup>2+</sup> Ion, and Mg<sup>2+</sup> Ion

T. Chatake, T. Ishikawa and Y. Morimoto

XXI Congress of the Int. Union of Crystallography, Osaka, Japan, Aug. 23-31, 2008,

Acta Crystallogr, **A64** (2008) C298.

The Effect of Deuterium Oxide on Hydration Structure of Proteinase K  
T. Ishikawa, T. Chatake and Y. Morimoto  
XXI Congress of the Int. Union of Crystallography, Osaka, Japan, Aug. 23-31, 2008,  
Acta Crystallogr, **A64** (2008) C372.

KUR Report  
Y. Kawabata  
Proc. 9th Japan-Korea meeting on Neutron Science, Pusan, Korea, Feb.9-10, 2009, O1F4.

## Reviews

The Progress in Cement Studies by Using Pulsed Neutron Beam  
K. Mori and T. Fukunaga  
Ceramics, **43**[11] (2008) 948-952 (in Japanese).

Development of the Cement and Concrete Studies by Neutron Scattering  
K. Mori, T. Fukunaga and K. Oishi  
ConcreteTechno, **27** (2008) 16-21 (in Japanese).

SANS Observation of Abnormal Aggregation of Protein  
M. Sugiyama, N. Fujii, Y. Morimoto and T. Fukunaga  
Hamon (The Japanese Society for Neutron Science), **18**(4) (2008) 191-196 (in Japanese).

Front Lines of Structural Analyses by Pulsed Neutron Diffraction  
S. Shamoto, K. Suzuya, T. Kamiyama, K. Kodama, T. Otomo and T. Fukunaga  
J. Plasma & Fusion Research, **84** (2008) 323-332 (in Japanese).

## Other

Initial Stage of Composite Structure and Ionic Conduction in Hydrophilic Polymer  
A. Kawaguchi, Y. Gotoh, Y. Fujimori, A. Furuta, Y. Nomura and N. Tsurutani  
Photon Factory Activity Report 2007, **25** (2008) 113-113.

## 2. Nuclear Physics and Nuclear Data

### Papers

Excitation Function for  $^{63}\text{Cu}(n,p)^{63}\text{Ni}$  Reaction in Neutron Energy Range up to 15 MeV  
K. Takamiya, Y. Ota, M. Akamine, S. Shibata, T. Shibata, Y. Ito, M. Imamura, Y. Uwamino, N. Nogawa, M. Baba,  
S. Iwasaki and S. Matsuyama  
Appl. Radiat. Isotopes, **66** (2008) 1321-1324.

Precise Intensity Measurements in the  $^{14}\text{N}(n,\gamma)^{15}\text{N}$  Reaction as a  $\gamma$ -Ray Intensity Standard up to 11 MeV  
I. Miyazaki, H. Sakane, H. Takayama, M. Kasaishi, A. Tojo, M. Furuta, H. Hayashi, O. Suematsu, H. Narasaki,  
T. Shimizu, M. Shibata, K. Kawade, A. Taniguchi and H. Harada  
J. Nucl. Sci. Technol., **45** (2008) 481-486.

Measurement of the Photonuclear ( $\gamma, n$ ) Reaction Cross Section for I-129 using Bremsstrahlung Photons  
A. K. M. L. Rahman, S. Kuwabara, K. Kato, H. Arima, N. Shigyo, K. Ishibashi, J. Hori and K. Nakajima  
Nucl. Sci. Eng., **160**[3] (2008) 363-369.

## Proceedings

Search for Isomeric Transitions in Fission Products around a Mass Number of 150

Y. Kojima, M. Shibata, A. Taniguchi, A. Murataka, K. Ota and K. Shizuma

Proc. Int. Conf. on Nuclear Data for Science and Technology, Nice, France, April 22 - 27, 2007, (2008) 115-118.

$Q_{\beta}$  Measurements of Neutron-Rich Isotopes with a Total Absorption Type Ge Detector Using the KUR-ISOL

H. Hayashi, I. Miyazaki, M. Shibata, Y. Kojima and A. Taniguchi

Proc. Int. Conf. on Nuclear Data for Science and Technology, Nice, France, April 22 - 27, 2007, (2008) 131-134.

Development of Determination Method of Prompt  $\gamma$ -ray Emission Probability for the Measurement of Neutron Capture Cross Sections

I. Miyazaki, H. Hayashi, A. Tojo, A. Taniguchi and M. Shibata

Proc. Int. Conf. on Nuclear Data for Science and Technology, Nice, France, April 22 - 27, 2007, (2008) 451-453.

Neutron Capture Cross Section Measurements on  $^{237}\text{Np}$  with a  $4\pi$  Ge Spectrometer

M. Mizumoto, M. Igashira, T. Ohsaki, T. Katabuchi, M. Oshima, M. Koizumi, Y. Toh, A. Kimura, H. Harada, K. Furutaka, S. Nakamura, F. Kitatani, J. Hori and J. Goto

Proc. Int. Conf. on Nuclear Data for Science and Technology, Nice, France, April 22-27, 2007, (2008) 591-594.

Performance of a  $4\pi$  Ge Spectrometer for Neutron Capture Cross Section Measurements

M. Oshima, J. Hori, H. Harada, K. Furutaka, M. Koizumi, F. Kitatani, Y. Toh, A. Kimura, S. Nakamura, M. Igashira, M. Mizumoto, T. Ohsaki, T. Katabuchi, J. Nishiyama and J. Goto

Proc. Int. Conf. on Nuclear Data for Science and Technology, Nice, France, April 22-27, 2007, (2008) 603-606.

## 3. Reactor Physics and Reactor Engineering

### Papers

Static and Kinetic Experiments on Accelerator-Driven System with 14 MeV Neutrons in Kyoto University Critical Assembly

C. H. Pyeon, M. Hervault, T. Misawa, H. Unesaki, T. Iwasaki and S. Shiroya

J. Nucl. Sci. Technol., **45**[11] (2008) 1171-1182.

Reflooding Experiments on a Vertical Surface with Radiation-Induced Surface Activation

J. Zhang, K. Mishima, T. Hazuku and T. Takamsa

J. Nucl. Sci. Technol., **45**[6] (2008) 541-546.

Evaluation Analysis of Prediction Methods for Two-phase Flow Pressure Drop in Mini-channels

L. Sun and K. Mishima

Int. J. Multiphase Flow, **35**[1] (2009) 47-54.

A New Uncertainty Reduction Method for Fuel Fabrication Process with Erbium-Bearing Fuel

T. Sano, T. Takeda and M. Yamasaki

J. Nucl. Sci. Technol., **46**[3] (2009) 226-231.

Shape Measurement of Bubble in a Liquid-Metal

Y. Saito, X. Shen, K. Mishima and M. Matsubayashi

Nucl. Instrum. Meth. A, **605** (2009) 192-196.

CHF in a Non-Uniformly Heated Tube under Low-Pressure and Low-Mass-Flux Condition (Influence of Angle of Inclined Upward Flow)

T. Ami, H. Umekawa, M. Ozawa, K. Mishima and Y. Saito

Trans. Jpn Soc. Mech. Eng. B, **75**[751] (2009) 474-475 (in Japanese).

## Proceedings

Experimental Study of Two Phase Flow in a Large Diameter Vertical Pipe Using Hot-Film Anemometer

R. Matsui, K. Mishima, X. Shen and H. Nakamura

Korea-Japan Student Seminar on Nuclear Thermal Hydraulics and Safety, Okinawa, Japan, Nov. 22- 23, 2008, P1-2.

Future Experiments on Minor Actinides Characteristics using Accelerator-Driven System in Kyoto University Critical Assembly

C. H. Pyeon, T. Misawa, H. Unesaki, K. Nakajima and S. Shiroya

Proc. Actinide and Fission Product Partitioning and Transmutation, 10th Information and Exchange Mtg., OECD/NEA., Mito, Japan, Oct. 6-9, 2008 (on CD-ROM).

Heat Transfer Enhancement during Reflooding Process Using Radiation Induced Surface Activation

J. Zhang, T. Shimokawa, T. Yodo, K. Mishima, H. Abe and T. Takamasa

Proc. 45th National Heat Transfer Symposium of Japan, Tsukuba, Japan, May 21-23, 2008, (2008) B141.

Improvement of Prediction Accuracy for Fuel Fabrication System with Erbium Bearing Fuel

T. Takeda, T. Sano, T. Kuroishi, M. Yamasaki and H. Unesaki

Proc. ICAPP'08, Anaheim, CA, USA, June 8-12, 2008, (2008) Paper 8028 (on CD-ROM).

Progress in Development of Erbium-Bearing Super High Burnup Fuel

M. Yamasaki, T. Kuroishi, T. Takeda, A. Yamamoto, H. Unesaki and M. Mori

Proc. ICAPP '08, Anaheim, CA, USA, June 8-12, 2008, (2008) Paper 8089 (on CD-ROM).

IAEA Coordinated Research Project (CRP) on 'Analytical and Experimental Benchmark Analyses of Accelerator Driven Systems'

A. Abánades, G. Aliberti, M. Carta, Y. Gohar, J. Janczyszyn, H. Kievitskaia, J. Maiorino, C. H. Pyeon, A. Stanculescu, A. Talamo, Y. Titarenko and W. Westmeier

Proc. Int. Conf. on Phys. Reactors (PHYSOR2008), Interlaken, Switzerland, Sept. 14-19, 2008, (2008) Paper 305 (on CD-ROM).

Approximate Estimation of Effective Delayed Neutron Fraction with Correlated Sampling Method

Y. Nagaya and K. Nakajima

Proc. Int. Conf. on Phys. Reactors (PHYSOR2008), Interlaken, Switzerland, Sept. 14-19, 2008, (2008) Paper 352 (on CD-ROM).

Integral Experiment on Erbium-Loaded Thermal Spectrum Cores using Kyoto University Critical Assembly

H. Unesaki, T. Takeda, A. Yamamoto, M. Mori and M. Yamasaki

Proc. Int. Conf. on Phys. Reactors (PHYSOR2008), Interlaken, Switzerland, Sept. 14-19, 2008, (2008) Paper 427 (on CD-ROM).

Application of Imaginary Source Multiplication Method to Subcriticality Measurement

S. Kawaguchi, T. Misawa, C. H. Pyeon and S. Shiroya

Proc. Int. Conf. on Phys. Reactors (PHYSOR2008), Interlaken, Switzerland, Sept. 14-19, 2008, (2008) Paper 429 (on CD-ROM).

Subcriticality Measurement by Neutron Source Multiplication Method with Higher Mode Analysis

T. Misawa and C. H. Pyeon

Proc. Int. Conf. on Phys. Reactors (PHYSOR2008), Interlaken, Switzerland, Sept. 14-19, 2008, (2008) Paper 496 (on CD-ROM).

Development of Optical Fiber Detector for Measurement of Fast Neutron

Y. Yagi, T. Misawa, C. H. Pyeon, H. Unesaki, S. Shiroya, S. Kawaguchi, S. Okajima and K. Tani

Proc. Int. Conf. on Phys. Reactors (PHYSOR2008), Interlaken, Switzerland, Sept. 14-19, 2008, (2008) Paper 654 (on CD-ROM).

A New Uncertainty Reduction Method for PWR Cores with Erbia Bearing Fuel

T. Takeda, T. Sano, T. Kitada, T. Kuroishi, M. Yamasaki and H. Unesaki

Proc. Int. Conf. on Phys. Reactors (PHYSOR2008), Interlaken, Switzerland, Sept. 14-19, 2008, (2008) Paper 661 (on CD-ROM).

Nuclear Characteristics Evaluation for Kyoto University Research Reactor with Low-Enriched Uranium Core

K. Nakajima and H. Unesaki

Proc. Int. Conf. on Phys. Reactors (PHYSOR2008), Interlaken, Switzerland, Sept. 14-19, 2008, (2008) Paper 663 (on CD-ROM).

Radiation Induced Surface Activation on SUS304 Rod Surface Coated with Thin Film Layer Formed by Vacuum Evaporation Method

J. Zhang, K. Mishima, N. Sugitani, M. Hino and T. Takamasa

Proc. 16th Int. Conf. on Nuclear Engineering, Orlando, Florida, USA, May 11-15, 2008, (2008) ICONE16-48192.

Neutron Spectrum Analyses by Foil Activation Method for High-Energy Proton Beam

C. H. Pyeon, H. Shiga, K. Abe, H. Yashima, T. Misawa, T. Iwasaki and S. Shiroya

Proc. 13th. Int. Symp. on Reactor Dosimetry, Alkmaar, the Netherlands, May 25-30, 2008, (2008) 340-344.

Constitutive Equations for Gas-Liquid Two-Phase Flow in Mini-Channels

K. Mishima and L. Sun

Proc. US-Japan Seminar on Two-Phase Flow Dynamics, Santa Monica, USA, Sept. 14-18, 2008 (on CD-ROM).

Flow Boiling Heat Transfer of CO<sub>2</sub>-Oil Mixture in a Horizontal Evaporator

Y. Saito and M. Kind

Proc. US-Japan Seminar on Two-Phase Flow Dynamics, Santa Monica, USA, Sept. 14-18, 2008 (on CD-ROM).

Status of Reduced Enrichment Program for Research Reactors in Japan

T. Ohba, T. Inoue and H. Unesaki

RERTR 2008 - 30th International Meeting on Reduced Enrichment for Research and Test Reactors, Washington, D.C. USA, Oct. 5-9, 2008, (2008) Paper S4-1.

Reactor Laboratory Course for Students using Kyoto University Critical Assembly (KUCA)

T. Misawa, H. Unesaki, C. Ichihara, C. H. Pyeon and S. Shiroya

The 16th Pacific Basin Nuclear Conference (16PBNC) - Pacific Partnership toward a Sustainable Nuclear Future - Aomori, Japan, Oct. 13-18, 2008, (2008) P16P1310 (on CD-ROM).

Heat Transfer Enhancement in Reflooding Process on SUS304 Rod with Film-coated Surface

J. Zhang, T. Yodo, M. Hino and K. Mishima

The 6th Japan-Korea Symposium on Nuclear Thermal Hydraulics and Safety (NTHAS6), Okinawa, Japan, Nov. 24-27, 2008, Paper N6P1102.

Distribution Parameter and Drift Velocity for Two-Phase Flow in a Large Diameter Pipe

X. Shen, R. Matsui, K. Mishima and H. Nakamura

The 6th Japan-Korea Symposium on Nuclear Thermal Hydraulics and Safety (NTHAS6), Okinawa, Japan, Nov. 24- 27, 2008, Paper N6P1121.

#### 4. Material Science and Radiation Effects

##### Papers

Local Magnetic Fields in the Mo Layer of Mo/Fe Multilayer

Y. Murakami, D. Fuse, Y. Sakamoto, Y. Hamada, T. Ono, S. Kitao, M. Seto, M. Tanigaki, T. Saito and Y. Ohkubo  
Hyperfine Interact., **79** (2007) 57-60.

Magnetic Properties of Rare-Earth Permanent Magnets under a High Radiation Environment

M. Tanigaki, K. Takamiya, Y. Komeno, A. Taniguchi and Y. Ohkubo  
Hyperfine Interact., **176** (2007) 125-128.

Transmission Positron Images Using Imaging Plates

M. Doyama, A. Kogure, M. Inoue, T. Kurihara, X. Cao, M. Matsuya, T. Yoshiie, Y. Hayashi, Q. Xu and M. Fujinami  
Appl. Surf. Sci., **255** (2008) 89-92.

Measurement of Electric Field Gradient at  $^{117}\text{In}$  on the Cu-Site in Mavicyanin by Perturbed Angular Correlation of  $\gamma$ -Rays

A. Yokoyama, T. Hashimoto, K. Ihara, H. Kikunaga, N. Kinoshita, I. Yamazaki, K. Kataoka, M. Yanase, M. Takata, Y. Murakami, K. Takamiya, M. Tanigaki and Y. Ohkubo  
Hyperfine Interact., **181** (2008) 69-73.

Mössbauer Spectroscopic Evidence on the Heme Binding to the Proximal Histidine in Unfolded Carbonmonoxy Myoglobin by Guanidine Hydrochloride

T. Harami, S. Kitao, Y. Kobayashi and T. Mitsui  
Hyperfine Interact., **181** (2008) 179-187.

$^{129}\text{I}$ -Mössbauer Study of Iodine-Doped Open- and Closed-End Single-Walled Carbon Nanotube

S. Kitao, Y. Kobayashi and M. Seto  
Hyperfine Interact., **183** (2008) 179-184.

Absorption Spectroscopy Using a Coherent Transition Radiation Millimeter Wave Light Source

S. Okuda and T. Takahashi  
Infrared Phys. Techn., **51**[5] (2008) 410-412.

Conversion Electron and X-ray Mössbauer Spectroscopies Using Synchrotron Radiation

T. Mitsui, M. Seto, R. Masuda, Y. Kobayashi and S. Kitao  
Jpn. J. Appl. Phys., **47** (2008) 7136-7139.

Development of neV-Resolution Spectroscopy Using Synchrotron-Based  $^{57}\text{Fe}$  Mössbauer Radiation

R. Masuda, T. Mitsui, S. Kitao, S. Higashitaniguchi, Y. Yoda and M. Seto  
Jpn. J. Appl. Phys., **47** (2008) 8087-8090.



Effects of Edge Dislocations on Interstitial Helium and Helium Cluster Behavior in  $\alpha$ -Fe

Y.X. Wang, Q. Xu, T. Yoshiie and Z.Y. Pan

J. Nucl. Mater., **376** (2008) 133-138.

Present Status of Study on Development of Materials Resistant to Radiation and Beam Impact

M. Kawai, H. Kokawa, M. Michiuchi, K. Kurishita, T. Goto, M. Futakawa, T. Yoshiie, A. Hasegawa, S. Watanabe, T. Yamamura, N. Hara, A. Kawasaki and K. Kikuchi

J. Nucl. Mater., **377** (2008) 21-27.

Reaction Kinetics Analysis of Damage Evolution in Accelerator Driven System Beam Windows

T. Yoshiie, Q. Xu, K. Sato, K. Kikuchi and M. Kawai

J. Nucl. Mater., **377** (2008) 132-135.

Temperature-Dependent Behavior of Impurity Atoms Implanted in Highly Oriented Pyrolytic Graphite - An Application of a New Online TDPAC Method

W. Sato, H. Ueno, H. Watanabe, H. Miyoshi, A. Yoshimi, D. Kameda, T. Ito, K. Shimada, J. Kaihara, S. Suda, Y. Kobayashi, A. Shinohara, Y. Ohkubo and K. Asahi

J. Phys. Soc. Jpn., **77** (2008) 095001 (1-2).

Spin Ordering in LaFeAsO and Its Suppression in Superconductor LaFeAsO<sub>0.89</sub>F<sub>0.11</sub> Probed by Mössbauer Spectroscopy

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