E262 A. Shinohara  
Behavior of Pionic Hydrogen Atoms (II)

E360 A. Shinohara  
Study of Pion Mesonic Atoms (III)

E546 A. Shinohara  
Measurement of Electronic X rays correlated with Pionic X rays

E567 A. Shinohara  
Precise Measurement of Electronic X rays from pionic atoms

| E262 |  
| Submitted | 1991.11.7 |
| Approved | 1991.12.3 |
| Beam line | $\pi\mu$ |
| Shift requested | 80 |
| Shift executed | 159 |
| Executed cycles | $92[2,3,6,7,9,10], 93[2,5,7,10]$ |

| E360 |  
| Submitted | 1995.2.13, extension 1997.11.11 |
| Beam line | $\pi\mu$ |
| Shift requested | $80 + 45$ extension |
| Shift executed | 309 |
| Executed cycles | $(95[10,12], 96[2-2]), 96[5,7,8,9], 97[2-1,2-2], (97[4-1]), 97[4-3], 98[1,2]$ |

| E546 |  
| Submitted | 2003.3.14 |
| Approved | 2003.8.8 |
| Beam line | $\pi\mu$ |
| Shift requested | 35 |
| Shift executed | 30 |
| Executed cycles | 03[6-1] |

| E567 |  
| Received | 2004.8.16 |
| Approved | 2004.9.14 |
| Beam line | $\pi\mu$ |
| Shift requested | $30 + 15$ extension |
| Shift executed | 55 |
| Executed cycles | 05[1,4-2] |

**Papers and activities**

[Legend]

- Physics papers published in refereed journal
- Technical papers
- PhD theses.
- Conference and Symposium.
- Internal Report and others.
A. Shinohara et al.
Measurements of transfer Process in Pion Capture by a Series of Alcohols
Hyp. Int. 84, 569(1994)

T. Saito et al.
Measurements of Atomic Capture Probabilities of Negative Pions in Metal Hydrides
Hyp. Int. 84, 193 (1994)

A. Shinohara et al.
Negative Pion Capture Process and its Chemical Effects in some Hydrocarbons

A. Shinohara et al.
Selective Measurements of Pion Transfer Process in Alcohols and Carboxylic Acids by Using the Deuterated Compounds

A. Shinohara et al.
Behavior of Pionic Hydrogen Atoms in Liquid Organic Compounds

T. Muroyama, et al.,

T. Muroyama, et al.,
Negative Pion Transfer Process in Hydrogen-Containing Gas Mixture

A. Shinohara, et al.
Behavior of Pionic Hydrogen Atoms in Gas and Liquid Phases

A. Shinohara
Formation Process of Pionic Atoms and their Behavior in Material

A. Shinohara, et al.
Pion Transfer Process of Pionic Atoms in the Gas Mixtures Containing Hydrogen at Various Pressures

K. Ninomiya, et al.
Energy Shift of Electronic X Rays Emitted from Pionic Atoms
Radiochimica Acta. 93, 515-518(2005)

K. Ninomiya, et al.
Study of Electronic X rays Emitted from Pionic and Muonic Atoms

T. Muroyama
Formation and Transfer Process of Pionic Hydrogen Atoms in Liquid Organic Compounds
In Japanese, Nagoya University, 1997

A. Shinohara
Behavior of Pionic Hydrogen Atoms
Int. Symposium on Roles of KEK-PS in Medium-energy Physics, Tsukuba (1994)

T. Muroyama et al.
Negative Pion Capture Process in Two Component Systems of Organic Compounds
Behavior of Pionic Hydrogen Atoms in Gas and Liquid Organic Compounds
7th Int. Conference on Muon spin Rotation/Relaxation/Resonance, Nikko (1996)
• A. Shinohara et al.
Behavior of Pionic Hydrogen Atoms in Gas and Liquid Phases
• T. Muroyama et al.
Negative Pion Transfer Process in Hydrogen-Containing Gas Mixtures
• A. Shinohara et al.
Pion Transfer Processes of Pionic Atoms in the Gas and Liquid Phases
5th Int. Conference on Nuclear and Radiochemistry, Pontresina, Sep. 3-8, 2000.
• K. Goto, et al.
Development of the Measuring System for Electronic X Rays Following Atomic Capture of Negative Pions
• K. Ninomiya et al.
Energy Shift of Electronic X rays Emitted from Pionic Atoms
6th International Conference on Nuclear and Radiochemistry (NRC6), Poster, Aachen, Germany, 8/29-9/3 2004.
• K. Ninomiya et al.
Electronic X-ray Energies Emitted from Pionic and Muonic Atoms
The International 21st Century COE Symposium of BINDEC Chemistry Network (BINDEC 2005),
The 6th International 21 Century COE Symposium on Integrated EcoChemistry(COEIEC 6),
Poster, Osaka, Japan, 2005.10.11-13
• K. Ninomiya et al.
Study of electronic X rays emitted from pionic and muonic atoms
Asia-Pacific Symposium on Radiochemistry (APSORC-05), Poster, Beijing, China, 2005.10.17-21
• K. Ninomiya et al.
Electronic KX-ray Energy Shift of Pionic and Muonic Atoms
The 8th International 21 Century COE Symposium on Integrated EcoChemistry, Poster, Kyoto, 2006.8.28-2
• K. Ninomiya et al.
Atomic Structure of Pionic and Muonic Atoms during Atomic Cascade
* A. Shinohara, et al.
Observation of the Pion Transfer Process in the H$_2$+Ar and CH$_4$+Ar Gas Mixtures at Various Pressures
* A. Shinohara, et al.
Pion Transfer from Hydrogen to Deuterium in H$_2$+D$_2$ Gas Mixtures
Test Experiments for Measurements of Electrons and X-Ray Emissions Following Pion Capture Process
Test Experiments for Measurements of Electronic X Rays Following Pion Capture Process
* K. Ninomiya, et al.
Measurements of Electronic X Rays Correlated with Pionic X Rays
* K. Ninomiya, et al.

● Physics papers published in refereed journal.
○ Technical papers.
* PhD theses.
○ Conference and Symposium.
* Internal Report and others.
Electronic X-ray Measurement for Pionic Atoms in Metal and Their Oxide Targets
* H. Sugiura, et al.
Measurements of Electronic X Rays from Pionic Atoms in Various Elements
* K. Ninomiya, et al.
Shift of Electronic X-ray Energies Emitted from Pionic Atoms
* H. Sugiura, et al.
Preliminary Experiments for Muonic Atom Chemistry
* T. Nakatsu, et al.
Basic Study on the Chemical Property of Muonic Atoms
* K. Ninomiya, et al.
Comparison of Electronic X-ray Energies between Pionic and Muonic Atoms