

## 2011年度 物理学科大輪講 第1回

日時：10月19日（水）14時40分から

場所：南7号館101教室

時間：25分（発表20分、討論5分）

### 前半（14:40-16:25）

座長：荒川

1. 08-041-029 （渡邊研究室） 14:45-15:10  
Short-and medium-range order in Zr<sub>80</sub>Pt<sub>20</sub> liquids  
N.A.Mauro,V.Wssels,JC.Bendert,S.Klein,A.K.gangopadhyay,M.JKramer,S.G.Hao,  
G.E.Rustan,A.Kreyssig,A.I.Goldman,and K.F.Kelton  
PHYSICAL REVIEW,vol. B 83 p.184109-1~8(2011)
2. 07-041-044 （渡邊研究室） 15:10-15:35  
Development of X-ray Imaging for Observing Solidification of Carbon Steels  
Hideyuki YASUDA, Tomoya NAGIRA, Masato YOSHIYA, Noriaki NAKAT-  
SUKA, Akira SUGIYAMA, Kentaro UESUGI and Keiji UMETANI  
ISIJ International, Vol. 51 , p. 402?408 (2011)
3. 08-041-012 （高橋研究室） 15:35-16:00  
Charge disproportionation and dynamics in  $\theta$ -(BEDT-TTF)<sub>2</sub>CsZn(SCN)<sub>4</sub>  
R.Chiba, K.Hiraki, T.Takahashi, H.M.Yamamoto, and T.Nakamura  
PHYSICAL REVIEW B, vol. 77, p. 115113 (2008)
4. 08-041-018 （西坂研究室） 16:00-16:25  
Probing Single-Molecule T4 Lysozyme Conformational Dynamics by Intramolec-  
ular Fluorescence Energy Transfer  
Yu Chen, Dehong Hu, Erich R. Vorpapel, and H. Peter Lu\*  
THE JOURNAL OF PHYSICAL CHEMISTRY B, vol. 107, p. 7947 (2003)

後半 (16:35–17:50)

座長：渡邊

5. 08-041-002 (荒川研究室) 16:35–17:00  
Adsorption isotherms of noble gases on glasses  
B. Kindl, E. Negri and G. F. Cerofolini  
Surface Science, vol. 23, p. 299 (1970)
6. 08-041-006 (荒川研究室) 17:00–17:25  
Physical adsorption of Xenon on Pd(100)  
P. W. Palmberg  
Surface Science, vol. 25, p. 598 (1971)
7. 08-041-004 (平野研究室) 17:25–17:50  
Experimental Realization of Einstein-Podolsky-Rosen-Bohm Gedankenexperiment: A New Violation of Bell's Inequalities  
Alain Aspect, Philippe Grangier, and Gérard Roger  
Physical Review Letters Vol.49 p.91 (1982)

## 2011年度 物理学科大輪講 第2回

日時：10月26日（水）14時40分から

場所：南7号館101教室

時間：25分（発表20分、討論5分）

### 前半（14:40-16:20）

座長：桂

1. 08-041-007 （河田研究室） 14:40-15:05  
Electrical transport properties of graphene on SiO<sub>2</sub> with specific surface structures  
K.Nagashio, T.Yamashita, T.Nishimura, K.Kita, and A.Toriumi  
JOURNAL OF APPLIED PHYSICS 110, 024513 (2011)
2. 08-041-037 （河田研究室） 15:05-15:30  
Plasmonic-enhanced polymer photovoltaic devices incorporating solution-processable metal nanoparticles  
Fang-Chung Chen, Jyh-Lih Wu, Chia-Ling Lee, Yi Hong, Chun-Hong Kuo, and Michael H. Huang  
APPLIED PHYSICS LETTERS 95, 013305 (2009)
3. 08-041-045 （河田研究室） 15:30-15:55  
High-Resolution Near-Field Raman Microscopy of Single-Walled Carbon Nanotubes  
Achim Hartschuh, Erik J. Sanchez, X. Sunney Xie, Lukas Novotny  
Physical Review Letters, vol. 90, Article. 095503 (2003)
4. 07-041-023 （河田研究室） 15:55-16:20  
Channel stress measurements of 45 nm node transistors with embedded silicon-germanium source and drain using ultraviolet Raman spectroscopy  
C.P.Wong, J.Kasim, J.P.Liu, A.See, and Z.X.Shen  
APPLIED PHYSICS LETTERS 96, 213513 (2010)

後半 (16:30–17:45)

座長：平野

5. 07-041-029 (河田研究室) 16:30–16:55  
Vibrational Phase Contrast Microscopy by Use of Coherent Anti-Stokes Raman Scattering  
M. Jurna, J. P. Korterik, C. Otto, J. L. Herek, and H. L. Offerhaus  
Physical Review Letters, vol. 103, Article. 043905 (2009)
6. 07-041-019 (渡邊研究室) 16:55–17:20  
Viscosity of liquid boron  
Junpei T. Okada , Takehiko Ishikawa , Yuki Watanabe, Paul-Francois Paradis, Yasuhiro Watanabe, Kaoru Kimura  
Physical Review B ,81, 140201-1~4 (2011)
7. 08-041-047 (荒川研究室) 17:20–17:45  
Low-energy electron diffraction from inert gas overlayers  
M. D. Chinn and S. C. Fain, Jr.  
J. Vac. Sci. Technol., Vol. 14, No. 1, Jan./Feb. 1977, p. 314

## 2011年度 物理学科大輪講 第3回

日時：11月2日（水）14時40分から

場所：南7号館101教室

時間：25分（発表20分、討論5分）

### 前半（14:40-16:20）

座長：田崎

1. 08-041-016 （高橋研究室） 14:40-15:05  
Local Spin Susceptibility Characteristic of Zero-Gap State of  $\alpha(\text{BEDT-TTF})_2\text{I}_3$  under Pressure  
Yoshiki TAKANO, Ko-ichi HIRAKI, Yusuke TAKADA, Hiroshi M. YAMAMOTO, and Toshihiro TAKAHASHI  
J.Phys.Soc.Jpn, vol. 79, p. 104704 (2010)
2. 07-041-020 （渡邊研究室） 15:05-15:30  
Accurate surface tension measurement of glass melts by the pendant drop method  
Yao-Yuan Chang, Ming-Ya Wu, Yi-Lin Hung, and Shi-Yow Lin  
REVIEW OF SCIENTIFIC INSTRUMENTS 82,055107 (2011)
3. 08-041-009 （西坂研究室） 15:30-15:55  
All-Optical constant-force laser tweezers.  
Nambiar R, Gajraj A, Meiners JC  
Biophys J.87(3):1972-1980:(2004)
4. 08-041-014 （平野研究室） 15:55-16:20  
Field test of a continuous-variable quantum key distribution prototype  
S. Fossier, E. Diamanti, T. Debuisschert, A. Villing, R. Tualle-Brouiri and P. Grangier  
New Journal of Physics, vol. 11, p. 045023 (2008)

後半 (16:30–17:45)

座長：西坂

5. 08-041-036 (平野研究室) 16:30–16:55  
Implementation of continuous variable quantum cryptography in optical fibres using a go-&-return configuration  
M. Legre, H. Zbinden, N. Gisin  
Quantum Information & Computation B, vol. 6, p. 326 (2006)
6. 08-041-035 (理論研究室) 16:55–17:20  
Rigorous Results and Theorems  
R.B.Griffiths  
Phase Transitions and Critical Phenomena (C.Domb and M.S.Green eds.)  
vol. 1, p. 7, Academic Press, 1972
7. 07-041-014 (理論研究室) 17:20–17:45  
Dynamics of k-core percolation  
C L Farrow, P Shukla and P M Duxbury  
J.Phys. A:Math. Theor.40(2007)

## 2011年度 物理学科大輪講 第4回

日時：11月9日（水）14時40分から

場所：南7号館101教室

時間：25分（発表20分、討論5分）

### 前半（14:40-16:20）

座長：渡邊

1. 08-041-022 （徳川研究室） 14:40-15:05  
BOUNDARY LAYER TRANSITION :PREDICTIONS BASED ON LINEAR THEORY  
D. ARNAL  
AGARD Report 793 (1993) Chapter1,2 PP2-1~2-63
2. 08-041-010 （徳川研究室） 15:05-15:30  
BOUNDARY LAYER TRANSITION:PREDICTIONS BASED ON LINEAR THEORY  
D. ARNAL  
AGARD Report 793(1993) Chapter 3, pp.2-1~2-63
3. 08-041-039 （荒川研究室） 15:30-15:55  
OH-content dependence of fractoluminescence spectra in silicaglass  
Y. Kawaguchi  
Physical Review B, vol. 54, p. 9721 (1996)
4. 08-041-030 （高橋研究室） 15:55-16:20  
NMR Studies of Exotic Members of Bechgaard Salt with Non-centrosymmetric Anions under Pressure  
Hidetaka Satukawa  
Synthetic Metals Volume 153, Issues 1-3, 21 September 2005, Pages 417-420

後半 (16:30–17:45)

座長：井田

5. 08-041-043 (渡邊研究室) 16:30–16:55  
Noncontact modulated laser calorimetry in a dc magnetic field for stable and supercooled liquid silicon  
Hidekazu Kobatake , Hiroyuki Fukuyama , Takao Tsukada and Satoshi Awaji  
MEASUREMENT SCIENCE AND TECHNOLOGY , vol . 21 , p 025901  
(2010)
6. 08-041-024 (西坂研究室) 16:55–17:20  
High-Speed Atomic Force Microscopy Reveals Rotary Catalysis of F1 -ATPase  
Takayuki Uchihashi,Ryota Iino,Toshio Ando,Hiroyuki Noji  
Science 333, 755 (2011)
7. 08-041-005 (平野研究室) 17:20–17:45  
Evidence for an oscillating soliton/vortex ring by density engineering of a Bose-Einstein condensate  
I.Shomroni,E.Lahoud,S.Levy and J.Steinhauer  
nature physics , vol. 5, p. 193 (2009)

## 2011年度 物理学科大輪講 第5回

日時：11月16日（水）14時40分から

場所：南7号館101教室

時間：25分（発表20分、討論5分）

### 前半（14:40-16:20）

座長：平野

1. 08-041-015 （理論研究室） 14:40-15:05  
Radiation from Moving Mirrors and from Black Holes  
P. C. W. Davies and S. A. Fulling  
Proc. R. Soc. Lond. A. 356, 237-257 (1977)
2. 07-041-008 （渡邊研究室） 15:05-15:30  
Diamagnetic levitation: Flying frogs and floating magnets  
M.D.Simon and A.K.Geim  
JOURNAL OF APPLIED PHYSICS 87, 6200(2000)
3. 08-041-019 （理論研究室） 15:30-15:55  
Pressure-Induced Zero-Gap Semiconducting State in Organic Conductor  $\alpha$ -  
(BEDT-TTF)<sub>2</sub>I<sub>3</sub> Salt  
Shinya KATAYAMA, Akito KOBAYASHI and Yoshikazu SUZUMURA  
Journal of the Physical Society of Japan, Vol.75, No.5, p. 054705 (2006)
4. 07-041-010 （理論研究室） 15:55-16:20  
Single Spin-flip sampling for the Simple Ising model  
David P. Landau, Kurt Binder  
A Guide to Monte Carlo Simulations in Statistical Physics (Cambridge University Press, 2000) Chapter 4, p.68-77

後半 (16:30–17:45)

座長：田崎

5. 08-041-027 (平野研究室) 16:30–16:55

Observation of vortex dipoles in an oblate Bose-Einstein condensate

T. W. Neely, E. C. Samson, A. S. Bradley, M. J. Davis, and B. P. Anderson

Physical Review Letters, vol. 104, p. 160401 (2010)

6. 08-041-023 (平野研究室) 16:55–17:20

Interaction-based quantum metrology showing scaling beyond the Heisenberg limit

M.Napolitano, M.Koschorreck, B.Dubost, N.Behbood, R.J.Sewell and M.W.Mitchell

Nature 471 486-489 (2011)

7. 08-041-031 (高橋研究室) 17:20–17:45

Superconducting State of the Organic Conductor (TMTSF)<sub>2</sub>ClO<sub>4</sub>

J. Shinagawa,<sup>1</sup> Y. Kurosaki,<sup>1,2</sup> F. Zhang,<sup>1</sup> C. Parker,<sup>1,3</sup> S. E. Brown,<sup>1</sup> D. Jerome,<sup>4</sup> J. B. Christensen,<sup>5</sup> and K. Bechgaard<sup>5</sup>

PHYSICAL REVIEW LETTERS, PRL 98, 147002 (2007)

## 2011年度 物理学科大輪講 第6回

日時：11月30日（水）14時40分から

場所：南7号館101教室

時間：25分（発表20分、討論5分）

### 前半（14:40-16:20）

座長：西坂

1. 08-041-011 （生命分子研） 14:40-15:05  
XMAP230 Is Required for the Organization of Cortical Microtubules and Patterning of the Dorsoventral Axis in Fertilized *Xenopus* Eggs  
Byeong-Jik Cha and David L.Gard  
Developmental Biology, vol205, p275-286(1999)
2. 07-041-003 （生命分子研） 15:05-15:30  
Structure of a nanobody-stabilized active state of the  $\beta_2$  adrenoceptor  
Søren G. F. Rasmussen, Hee-Jung Choi, Juan Jose Fun, Els Pardon, Paola Casarosa, Pil Seok Chae, Brian T. DeVree, Daniel M. Rosenbaum, Foon Sun Thian, TongSun Kobilka, Andreas Schnapp, Ingo Konetzki, Roger K. Sunahara, Samuel H. Gellman, Alexander Pautsch, Jan Steyaert, William I. Weis and Brian K. Kobilka  
Nature 469, 175-180 (13 January 2011)
3. 07-041-012 （生命分子研） 15:30-15:55  
RAD51 loss of function abolishes gene targeting and de-represses illegitimate integration in the moss *Physcomitrella patens*  
D.G. Schaefer, F. Delacote, F. Charlot, N. Vrielynck, A. Guyon-Debast, S. Le Guin, J.M. Neuhaus, M.P. Doutriaux, F. Nogue  
DNA Repair, vol. 9, p. 526 (2010)
4. 07-041-018 （生命分子研） 15:55-16:20  
Structures of the CXCR4 Chemokine GPCR with Small-Molecule and Cyclic Peptide Antagonists

Beili Wu, Ellen Y. T. Chien, Clifford, Wei Liu, Vsevolod Katritch, Ruben Abagyan, Alexei Brooun, Peter Wells, F. Christopher Bi, Damon J. Hamel, Peter Kuhn, Tracy M. Handel, Vadim Cherezov, Raymond C. Stevens.

Science 19 November 2010: Vol. 330 no. 6007 pp. 1066-1071

後半 (16:30–17:45)

座長：井田

5. 07-041-031 (渡邊研究室) 16:30–16:55  
Machine vision for high-precision volume measurement applied to levitated containerless material processing  
R. C. Bradshaw and D. P. Schmidt J. R. Rogers K. F. Kelton R. W. Hyersa  
REVIEW OF SCIENTIFIC INSTRUMENTS vol.76, p.125108 (2005)
6. 08-041-013 (落合研究室) 16:55–17:20  
Sonic boom and subsonic aircraft noise outdoor simulation design study  
Victor W. Sparrow, Steven L. Garrett  
Aircraft Impacts on Local and Regional Air (The Partnership for AiR Transportation Noise and Emissions Reduction, 2010) pp. 1-43
7. 08-041-033 (平野研究室) 17:20–17:45  
Back-Action Evading Measurements of an Optical Field Using Parametric Down Conversion  
A. La Porta, R. E. Slusher, and B. Yurke  
Physical Review Letters, vol. 62, p. 28 (1989)

## 2011年度 物理学科大輪講 第7回

日時：12月7日（水）14時40分から

場所：南7号館101教室

時間：25分（発表20分、討論5分）

### 前半（14:40-16:20）

座長：桂

1. 08-041-041 （高橋研究室） 14:40-15:05  
Global Phase Diagram of the Magnetic Field-Induced Organic Superconductors  $\lambda$ -(BETS)<sub>2</sub>Fe<sub>x</sub>Ga<sub>1-x</sub>Cl<sub>4</sub>  
Shinya UJI, Taichi TERASHIMA, Chieko TERAURA, Taro YAKABE, Yoshikazu TERAJI, Syuma YASUZUKA, Yasutaka IMANAKA, Madoka TOKUMOTO, Akiko KOBAYASHI, Fumiko SAKAI, Hisashi TANAKA, Hayao KOBAYASHI, Luis BALICAS and James S. BROOKS  
Journal of the Physical Society of Japan, vol. 72, p. 369 (2003)
2. 08-041-021 （理論研究室） 15:05-15:30  
OBSERVATIONS IN A UNIVERSE HOMOGENEOUS IN THE MEAN  
Ya.B.Zel'dovich  
Translated from *Astronomicheskii Zhurnal*, Vol.41, No.1, pp.19-24, January-February, 1964 Original article submitted June 12, 1963
3. 06-041-018 （渡邊研究室） 15:30-15:55  
Viscosity of molten silicon and factors affecting measurement  
Yuzuru Sato, Yuichi Kameda, Toru Nagasawa, Takashi Sakamoto, Shinpei Moriguchi, Tsutomu Yamamura, Yoshio Waseda  
Journal of Crystal Growth 249 404-415 2003
4. 07-041-048 （荒川研究室） 15:55-16:20  
Demonstration of a pulsed photoelectron spectrometer on mass-selected negative ions O<sup>-</sup>, O<sub>2</sub><sup>-</sup>, and O<sub>4</sub><sup>-</sup>  
Lynmarie A. POSEY, Michael J. DELUCA and Mark A. JOHNSON  
CHEMICAL PHYSICS LETTERS, vol. 131, p. 170 (1986)

後半 (16:30–18:10)

座長：荒川

5. 08-041-020 (理論研究室) 16:30–16:55  
APPARENT WEIGHT OF PHOTONS  
R.V.Pound and G.A.Rebka,Jr.  
PHYSICAL REVIEW LETTERS, vol. 4, p. 337 (1960)
6. 08-041-025 (西坂研究室) 16:55–17:20  
Defocused orientation and position imaging(DOPI) of myosin ☒  
Erdal Toprak, Joerg Enderlein, Sheyum Syed, Sean A. McKinney, Rolfe G.  
Petschek, Taekjip Ha, Yale E. Goldeman, and Paul R. Selvin  
PNAS April 25, 2006 vol. 103 no. 17 6495-6499
7. 07-041-036 (理論研究室) 17:20–17:45  
ON THE STABILITY OF SURFACE OF STRESSED SOLIDS  
D. J. SROLOVITZ  
Acta Metallurgica 、 Vol.37,No.2 p.621,1989
8. 07-041-040 (理論研究室) 17:45–18:10  
Nonequilibrium Equality for Free Energy Differences  
C. Jarzynski  
Physical Review Letters, vol. 78, p. 2690 (1997)