

文部科学省特定領域研究
「スーパークリーン物質で実現する新しい量子相の物理」
領域発足研究会 プログラム

期日：2005年12月15日（木）-16日（金）
場所：東京大学本郷キャンパス 小柴ホール

12月15日（木）

セッション1（全体紹介，A02班） 座長：坪田誠（阪大院理）

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|-------------|---|
| 10:20-10:35 | 0-01: 福山寛（領域代表者：東大院理）
New Horizon of Low Temperature Physics in the Twenty First Century |
| 10:35-10:45 | 0-02: 家泰弘（評価者：東大物性研） |
| A02班 | |
| 10:45-11:15 | 0-03: 白濱圭也（慶大理工）
Search for Novel Quantum Phenomena in ^4He Confined in Nano - porous Media |
| 11:15-11:35 | 0-04: 鈴木勝（電通大）
Ultrasonic Study for Superfluidity of ^4He Filled in a Nano - porous Glass |
| 11:35-12:05 | 0-05: 和田信雄（名大院理）
One-Dimensional ^4He and ^3He Quantum Fluids Formed in Nanopores |
| 12:05-12:25 | 0-06: 平島大（名大院理）
Ground State of ^3He Atoms in a Narrow Tube |

（昼食休憩）

セッション2（A03班） 座長：前野悦輝（京大国際融合創造セ）

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|-------------|---|
| A03班 | |
| 13:40-14:10 | 0-07: 坪田誠（阪大院理）
Quantum Fluid Dynamics in Superfluid Helium and Atomic Bose-Einstein Condensates |
| 14:10-14:30 | 0-08: 矢野英雄（阪大院理）
Study on the Quantum Turbulence in Superfluid ^4He generated by a Vibrating Wire |
| 14:30-15:00 | 0-09: 上田正仁（東工大院理工）
Bose-Einstein Condensation with Internal Degrees of Freedom |
| 15:00-15:20 | 0-10: 平野琢也（学習院大理）
Experimental Study of Atomic Bose-Einstein Condensates with Internal Degrees of Freedom |

（休憩）

セッション3 (A04 班その1) 座長：上田正仁 (東工大院理工)

A04 班その1

- 15:40-16:10 0-11: 前野悦輝 (京大国際融合創造セ)
Novel Quantum Phenomena Characteristic of Spin-Triplet Superconductivity
- 16:10-16:30 0-12: 石田憲二 (京大院理)
Plan of the Study of Superconducting Sr_2RuO_4 by Resonance Experiments
- 16:30-16:50 0-13: 三宅和正 (阪大院基礎工)
Effect of Spin-Orbit Interaction in Spin-Triplet Superconductor: Structure of \mathbf{d} -vector and Anomalous ^{17}O -NQR Relaxation in Sr_2RuO_4
- 16:50-17:10 0-14: 田仲由喜夫 (名大院工)
Anomalous Proximity Effect in Triplet Superconductor Junctions
- 17:10-17:30 0-15: 神原浩 (東大院理)
STM/STS Experiments of Sr_2RuO_4 and Related Compounds

17:30-19:00 ポスターセッション

19:00-21:00 懇親会 (於 山上会館地階食堂「御殿」)

12月16日(金)

セッション4 (A04 班その2, A01 班その1) 座長：和田信雄 (名大院理)

A04 班その2

- 9:00- 9:30 0-16: 石川修六 (阪市大院理)
Anisotropic Superfluid ^3He in Some Circumstances
- 9:30- 9:50 0-17: 久保田実 (東大物性研)
Spin Dynamics and Vortex State of $^3\text{He-A}$ Studied by NMR Line Width Change under Rotation
- 9:50-10:10 0-18: 永井克彦 (広大総合科学)
Boundary and Impurity Effects on Anisotropic Superfluids and Superconductors

A01 班その1

- 10:10-10:40 0-19: 福山寛 (東大院理)
Quantum Phases in Two Dimensional Helium Three
- 10:40-11:00 0-20: 小形正男 (東大院理)
Two-dimensional Fermion System in Triangular Geometry and its Future

(休憩)

セッション5 (A01 班その2) 座長: 白濱圭也 (慶大理工)

A01 班その2

- 11:20-11:50 0-21: 今田正俊 (東大物性研)
Novel Quantum Phase and Criticality
- 11:50-12:10 0-22: 中辻知 (京大院理)
Spin Disorder in a Bulk Triangular Lattice Antiferromagnet
- 12:10-12:30 0-23: 求幸年 (理研)
Quantum Critical Behavior in Geometrically-Frustrated Systems
- 12:30-12:50 0-24: 鹿野田一司 (東大院工)
Mott transition and Spin Degrees of Freedom in Q-2D Organics

(昼食休憩)

セッション6 (A05 班その1) 座長: 今田正俊 (東大物性研)

A05 班その1

- 14:00-14:30 0-25: 石本英彦 (東大物性研)
Magnetism and Crystal Control in Quantum Solid
- 14:30-14:50 0-26: 佐々木豊 (京大低物セ)
Nuclear Ordered Solid ^3He : Experimental Study at Kyoto University
- 14:50-15:10 0-27: 奥田雄一 (東工大院理工)
Crystal Growth of Clean and Dirty Solid Helium

(休憩)

セッション7 (A05 班その2) 座長: 三宅和正 (阪大院基礎工)

A05 班その2

- 15:30-16:00 0-28: 桃井勉 (理研)
Exotic Magnetism Induced by Ring Exchange
- 16:00-16:20 0-29: 久保健 (青学大理工)
Magnetism on Generalized Partial Line Graphs
- 16:20-16:40 0-30: 宮下精二 (東大院理)
Quantum Dynamics under Time-dependent External Fields
- 16:40-17:00 0-31: 常次宏一 (京大基研)
Spin Nematic Order in Triangular Antiferromagnet
- 17:00-17:10 総括

ポスターセッション

- P-01. 河江達也 (九大工)
Orbital Physics in Pr-based f-electron Compounds
- P-02. 望月敏光 (東大院理)
Two-dimensional Electron Systems at Cleaved Semiconductor Surfaces and Observation of the Quantum Hall Effect
- P-03. 森下將史 (筑波大物理)
Heat Capacity of ^3He Solid Films on Graphite in Magnetic Fields
- P-04. 向賢一 (東大院理)
Pulsed-NMR Measurements for Monolayer ^3He
- P-05. 松本洋介 (東大物性研)
Heat Capacity Measurements of a New Quantum Phase of Two-dimensional ^3He in High Magnetic Fields
- P-06. 渡辺真仁 (東大物性研)
Electronic States near Quantum Critical Point of Valence Transition
- P-07. 是常隆 (理研)
Mott Transition in the two-dimensional Hubbard Model with Geometrical Frustration
- P-08. 澤田安樹 (京大低温セ)
Macrocoherence in Bilayer Quantum Hall States
- P-09. 川島洋徳 (理研)
Mobility Measurements of Surface State Electrons on the Superfluid Helium
- P-10. 近藤大司 (慶大理工)
Search for the Supersolid Phase in Bulk Solid ^4He
- P-11. 斎藤広大 (慶大理工)
Development of a Low Temperature Scanning Probe Microscopy
- P-12. 石井洋典 (慶大理工)
Measurements of Freezing Pressure of Supercooled Liquid Hydrogen Confined in Nano-porous Glass
- P-13. 高木丈夫 (福井大工)
Monte Carlo Simulation of ^4He in a Small Pore Geometry
- P-14. 山本恵一 (慶大理工)
Heat Capacity Measurement of ^4He Confined in a Nano Porous Material
- P-15. 谷口淳子 (電通大量子物質工)
Interfacial Friction of ^4He Films
- P-16. 小林利章 (電通大量子物質工)
Ultrasonic Study for Superfluidity of ^4He Filled in Porous Media
- P-17. 松下雄樹 (名大院理)
Heat-capacity Study of Quantum Helium Fluid Adsorbed on One-dimensional Nanopores of FSM-16
- P-18. 出雲弘幸 (名大院理)
Possible Quantum Clusters of Helium in Cages of $\text{NH}_4\text{-Y}$ Zeolite
- P-19. 清水健吾 (名大院理)
Quantum Ground States Realized in Low-dimensional Heisenberg Organic Magnets
- P-20. 戸田亮 (名大院理)
Superfluidity and Heat Capacities of ^4He Adsorbed on Three-Dimensional Nanopores of HMM-2

- P-21. 加藤毅 (名大院理)
Frequency Dependence of Superfluidity in Thin ^4He Films on Planar Surfaces
- P-22. 大橋洋士 (筑波大院数理物質科学)
Itinerant-localized Duality of a Strongly-correlated Superfluid Bose Gas in an Optical Lattice
- P-23. 金本理奈 (阪市大院理)
Pattern Formation of Spin-Polarized Fermions in a Fast Rotating Boson-Fermion Mixture
- P-24. 桑本剛 (学習院大理)
Dynamics of ^{87}Rb Spin-2 Bose-Einstein Condensates
- P-25. 胡曉 (物質・材料研究機構)
Possible Supersolid Phase in Bose-Einstein Condensate with Optical-lattice Potential
- P-26. 濱崎康平 (学習院大理)
Dynamics of Two-component Bose-Einstein Condensates in an Optical Trap
- P-27. 川口由紀 (東工大院理工)
Einstein-de Haas Effect in Dipolar Bose-Einstein Condensates
- P-28. 薄田隼人 (学習院大院自然科学)
Topological Vortex Nucleation in Bose-Einstein Condensates
- P-29. 浅野泰寛 (北大院工)
Spin Current in p-wave Superconducting Rings
- P-30. 横山毅人 (名大院工)
Josephson Current between p-wave Superconductors
- P-31. 熊谷健一 (北大院理)
Texture of Superconducting Order Parameter Expected in the FFLO State of CeCoIn_5
- P-32. 柳瀬陽一 (東大院理)
Microscopic Theory on the Multi-component Superconducting Order Parameter in Sr_2RuO_4 and $\text{Na}_x\text{CoO}_2 \cdot y\text{H}_2\text{O}$
- P-33. 小栗章 (阪市大院理)
Transport through Quantum Dots in the Kondo Regime: Normal and Superconducting Cases
- P-34. 渡邊努 (名大院工)
Superconductivity and a Mott Transition in a Hubbard Model on an Anisotropic Triangular Lattice
- P-35. 横山寿敏 (東北大院理)
Superconductivity and Mott Transition in a Two-dimensional Hubbard Model at Half Filling
- P-36. 柄木良友 (東大物性研)
The Low Temperature Magnetic Properties of Unconventional Superconductor $\text{PrOs}_4\text{Sb}_{12}$
- P-37. 小林憲司 (千葉工大工)
Superconducting States in a Two-orbital Hubbard Model on a Triangular Lattice
- P-38. 房登真司 (京大院理)
Superconductivity of Sr_2RuO_4 - $\text{Sr}_3\text{Ru}_2\text{O}_7$ Eutectic
- P-39. 星原健吾 (阪大院基礎工)
Triplet Superconductivity Induced by Short-Range Ferromagnetic Correlations Due to the Coulomb Repulsion at Oxygen Site in Sr_2RuO_4
- P-40. 市岡優典 (岡山大理)
Magnetization Process in a Chiral p-wave Superconductor with Multi-domains
- P-41. 市岡優典 (岡山大理)
Electronic Structure of Vortex State in a FFLO Superconductor

- P-42. 太田幸則 (千葉大理)
Ring-exchange Mechanism for Triplet Superconductivity in a Two-chain Hubbard Model
- P-43. 宇田川将文 (東大院理)
Effect Formation of Non-unitary State near the Upper-critical Field of Sr_2RuO_4
- P-44. 中村文彦 (広島大院先端)
Pressure and Magnetic-field Induced Novel Quantum Phenomena in Single-layered Ruthenates
- P-45. 矢口宏 (京大院理)
Interface Superconductivity (3-K Phase) in Sr_2RuO_4 -Ru under Uniaxial Pressure
- P-46. 古川はづき (お茶大理)
Neutron Scattering Studies on Sr_2RuO_4
- P-47. 石田武和 (阪府大院工)
Superclean d-wave $\text{YBa}_2\text{Cu}_4\text{O}_8$ Single Crystal Embedded in Conventional Superconductor to Design a Novel Physical System
- P-48. 水島健 (岡山大理)
Emergence of FFLO Modulation in Surface Regions of Trapped Fermionic Superfluid with Asymmetric Spin Populations
- P-49. 村川寛 (京大院理)
Measurement of the ^{101}Ru -Knight Shift of Superconducting Sr_2RuO_4 in a Small Magnetic Field
- P-50. 新井敏一 (京大低温セ)
Detection of Adsorbed Two-Dimensional Atomic Hydrogen Gas by Helium Surface State Electrons
- P-51. 和田雄一郎 (東工大院理工)
Surface Andreev Bound States of Superfluid ^3He A and B Phases
- P-52. 阿部陽香 (東工大院理工)
Motion of a Sound-induced Bubble in ^3He - ^4He Liquid Mixtures
- P-53. 小林聡 (東大物性研)
Dynamics of Magnetically Induced Superflow in Spin-Polarized ^3He -A₁
- P-54. 齋藤政通 (理研)
Investigation of New Phases in Submicron Superfluid ^3He Film by Inter-digitated Capacitors
- P-55. 松原明 (京大低温セ)
Study of Two-dimensional Spin Polarized Atomic Hydrogen Using Heterodyne ESR Technique
- P-56. 松原明 (京大低温セ)
Rotating Nuclear Demagnetization Cryostat for Homogeneous and High Magnetic Field Experiments
- P-57. 小原顕 (阪市大院理)
The Study of Superfluid ^3He in Aerogel using 4th Sound Resonance
- P-58. 上野智弘 (京大医)
Development of MRI Microscope and its Application to Liquid ^3He - ^4He Mixtures
- P-59. 齋藤雄 (東工大院理工)
Melting Shape of ^4He Crystal after Large Deformation
- P-60. 谷口二郎 (東工大院理工)
Visualization of SN Interface of Liquid ^4He
- P-61. 宮下渉 (東工大院理工)
Anomalous Dynamics of Capillary Condensation in Aerogels
- P-62. 根間裕史 (東大物性研)
Gapless Spin Liquid in Two-dimensional ^3He under High Magnetic Fields

- P-63. 田中孝佳 (京大院理)
Nucleation and Growth of Stable Phase during the Magnetic Field Induced Phase Transition between U2D2 ^3He and CNAF ^3He
- P-64. 岡本佳子 (京大院理)
Spinwave and Sound in Nuclear Ordered Phases of Solid ^3He
- P-65. 坂井徹 (日本原子力研究開発機構)
Ring-exchange-induced Quantum Phenomena in Strongly Correlated Electron Systems
- P-66. 鄭旭光 (佐賀大理工)
Co-existence of Long-Range Order and Spin Fluctuation in a New Geometric Frustration System $\text{M}_2\text{Cl}(\text{OH})_3$ [$\text{M} = \text{Cu}^{2+}, \text{Co}^{2+}, \text{Ni}^{2+}, \text{Fe}^{2+}$]
- P-67. 有川晃弘 (京大基研)
Spin and Nematic Correlation of $S=1$ Triangular Antiferromagnet
- P-68. 南部雄亮 (京大院理)
Impurity Effects of the Spin Disordered State in NiGa_2S_4
- P-69. 小沼圭介 (京大院理)
Magnetic Properties of NiGa_2S_4 Single Crystals
- P-70. 安田千寿 (青学大理工)
Spin-Wave Analysis to the Multiple-Spin Exchange Model on the Triangular Lattice in the Magnetic Field
- P-71. 内平雄真 (青学大理工)
Order Parameters in the Multiple-Spin Exchange Model in the Magnetic Field
- P-72. 岡本清美 (東工大理工)
Interplay between the Trimerization and the Frustration in Quantum Spin Chains
- P-73. 金子浩 (金沢大自然)
Crystal Distortion of Pyrochlore Compounds $\text{Dy}_2\text{Ti}_2\text{O}_7$, $\text{Ho}_2\text{Ti}_2\text{O}_7$ below about Spin-Ice Transition Temperature
- P-74. 賀川史敬 (東大院工)
Unconventional criticality of Mott transition in a quasi-two-dimensional organic conductor