



EUROPEAN
SCIENCE
FOUNDATION



JSPS

Japan Society for the Promotion of Science

ESF-JSPS Frontier Science Conference

Series for Young Researchers

Quantum Information and Quantum Physics

Shonan Village Center, Japan, 12-18 March 2005

Co-Chairs: **Seigo Tarucha** (University of Tokyo, JP)
Martin Plenio (Imperial College London, UK)

Final Programme

On line at: <http://www.esf.org/esfjspd>

Saturday 12th March 2005

Late afternoon / early evening	Arrival of speakers & participants
	Registration at the hotel reception and ESF-JSPS desk
18.00	Get-together-drinks & Dinner

Sunday 13th March 2005

	Conference Opening - Presentation of JSPS & ESF
09.45-10.05	Motoyuki Ono , President, Japan Society for the Promotion of Science (JSPS), JP
10.05-10.25	Bertil Andersson , Chief Executive, European Science Foundation (ESF), Strasbourg, FR
10.30	<u>Keynote Lecture</u> Sumio Iijima , University of Meijo, JP <i>Controlled growth and characterization of carbon nanotubes</i>
	<u>Condensed Matter: Superconducting Devices</u>
11.30	Yasunobu Nakamura , NEC Laboratories, JP <i>Decoherence in a superconducting charge qubit</i>
12.05	Discussion

- 12.15 Lunch
- 13.50 EU Presentation
Pierrick Fillon-Ashida, Head of Science and Technology Section (S&T), the Delegation of the European Commission in Japan
- 14.15 Condensed Matter: Superconducting Devices
Yuriy Makhlin, Landau Institute, RU
Coherence in superconducting qubits
- 14.50 Discussion
- 15.00 **Hans Mooij**, Delft University of Technology, NL
Superconducting Flux Qubits
- 15.35 Discussion
- 15.45 Condensed Matter: Nuclear Spins
Masahiro Kitagawa, University of Osaka, JP
How to make NMR quantum computation a real quantum computation?
- 16.20 Discussion
- 16.30 Coffee Break
- 17.00 **Kohei Itoh**, University of Keio, JP
Solid-state silicon NMR quantum computer
- 17.35 Discussion
- 18.00 Dinner

Monday 14th March 2005

- 09.30 Condensed Matter: Spins, Charges, Excitons ...
Hidehiko Kamada, NTT Basic Research Laboratories, JP
Looking into semiconductor quantum dots with regard to quantum information science & technologies
- 10.05 Discussion
- 10.15 **Toshimasa Fujisawa**, NTT Basic Research Laboratories, JP
Dynamics of single-electron charge and spin in quantum dots
- 10.50 Discussion
- 11.00 Coffee break
- 11.30 **Daniel Loss**, University of Basel, CH
Spin qubits in Nanostructures
- 12.05 Discussion
- 12.15 Lunch
- 14.15 **Seigo Tarucha**, University of Tokyo, JP
Spin effects and spin qubits with quantum dots
- 14.50 Discussion

- 15.00 **Yoshihisa Yamamoto**, University of Stanford, US
Single photons and entangled photons from quantum dots
- 15.35 Discussion
- 15.45 Coffee Break
- 16.15 **Atac Imamoglu**, ETH Zürich, CH
Quantum optics using quantum dots
- 16.50 Discussion
- 17.00 **Martin Plenio**, Imperial College London, UK
Generation and propagation of entanglement with little local control
- 17.35 Discussion
- 18.00 Dinner
- 19.30 **Poster Session**

Tuesday 15th March 2005

- 09.30 *Optical Implementations*
- Masahide Sasaki**, National Institute of Information and Communications Technology, JP
EPR beams and photon number detector for non-Gaussian operations with continuous variables
- 10.05 Discussion
- 10.15 **John Rarity**, University of Bristol, UK
Photonic quantum information
- 10.50 Discussion
- 11.00 Coffee break
- 11.30 **Kae Nemoto**, National Institute of Informatics, JP
Quantum information processing in Optics
- 12.05 Discussion
- 12.15 **Ian Walmsley**, University of Oxford, UK
Efficient quantum state preparation: Counting photons with a calibrated detector
- 12.50 Discussion
- 13.00 **Excursion to Kamakura** (with lunch packages)
- 18.00 **Cultural Programme**
- 19.00 **Conference Dinner**

Wednesday 16th March 2005

- 09.30 Optical Implementations
Dagmar Bruss, University of Düsseldorf, DE
Witnessing multipartite entanglement
- 10.05 Discussion
- 10.15 **Harald Weinfurter**, LMU München, DE
Multiphoton Entanglement and Multipart Quantum Communication
- 10.50 Discussion
- 11.00 Coffee break
- 11.30 **Akira Furusawa**, University of Tokyo, JP
Quantum teleportation and its applications
- 12.05 Discussion
- 12.15 **Nobuyuki Imoto**, The Graduate University for Advanced Studies, JP
Quantum operations by local measurement and classical communications
- 12.50 Discussion
- 13.00 Lunch
- 15.00 Trapped particles: Atoms and Ions
Mikio Kozuma, Tokyo Institute of Technology, JP
Communication of quantum information between light and atoms
- 15.35 Discussion
- 15.45 **Hidetoshi Katori**, University of Tokyo, JP
Engineering Stark potentials for precision measurements: optical lattice clock and electrodynamic surface trap
- 16.20 Discussion
- 16.30 **Rainer Blatt**, University of Innsbruck, AT
Quantum information processing with trapped Ca⁺ ions
- 17.05 Discussion
- 18.00 Dinner
- 19.30 **Poster Session**

Thursday 17th March 2005

- 09.30 Trapped Particles: Atoms and Ions
Ignacio Cirac, Max-Planck-Institute of Quantum Optics, DE
Quantum Information Processing with Quantum Optical Systems
- 10.05 Discussion

- 10.15 **Christoph Naegerl**, University of Innsbruck, AT
Experiments with ultracold molecules and molecular quantum gases
- 10.50 Discussion
- 11.00 Coffee Break
- 11.45 **Peter Knight**, Imperial College London, UK
Manipulating quantum states
- 12.20 Discussion
- 12.30 Lunch
- 14.30 **Joerg Schmiedmayer**, University of Heidelberg, DE
Mesoscopic physics with atom chips
- 15.05 Discussion
- 15.15 **Peter Zoller**, University of Innsbruck, AT
Quantum Information Processing and Condensed Matter Physics with Cold Atoms
- 16.15 Closing Session
- 18.00 **Farewell Party: Dinner cruise in Yokohama**

Friday 18th March 2005

Breakfast & Departure

All posters are accepted, unless the Conference Chairs inform you otherwise.