The 7th KAKENHI Quantum cybernetics General Meeting

Date: 21st – 22nd June, 2012
Place: Hyatt Regency KYOTO (Kyoto, Japan)
Participants: 62p.

Program:

1st day: 21st June, 2012 (Thu)

Time	Theme	Speaker
09:00 – 09:15	Opening speech	J.S. Tsai
	Proposed Research	
09:15 – 10:00	A01 Study of superconducting quantum cybernetics	J.S. Tsai
10:00 – 10:45	A02 Study of the control, measurement, and transfer of quantum information using a semiconductor nanoassembly	Y. Tokura
10:45 – 11:30	B01 Molecular spin quantum control	M. Kitagawa
11:30 – 12:15	C01 Quantum control using cold atoms	Y. Takahashi
12:15 – 13:00	Luncheon meeting	
13:00 – 13:45	C02 Quantum information processing using an ion trap system	S. Urabe
13:45 – 14:30	D01 Realization of quantum cybernetics using photonic quantum circuits	S. Takeuchi
14:30 – 15:15	D02 Light-based multi-qubit quantum control	M. Koashi
15:15 – 15:30	Break	
	H22 Open Solicitation for Research Proposals	
15:30 – 16:15	New development of quantum estimation theory in quantum cybernetics	A. Fujiwara
16:15 – 17:00	Theory on quantum coherence in hybrid quantum system of superconductor and quantum dot	M. Mori
17:00 – 17:45	Study of single NV center in diamond toward scalable multi-qubit system	N. Mizuochi
17:45 – 18:30	Manipulation of electron spin and nuclear spins in hetero-g-factor double quantum dot	K. Ono
18:30 – 19:30	Lamp Session	
19:30 – 21:30	Poster session	

2nd day: 22nd June, 2012 (Fri)

Time	Theme	Speaker
	H24 Open Solicitation for Research Proposals	
09:00 – 09:20	Heterogeneous Quantum Repeater Hardware	R. Van Meter
09:20 – 09:40	Classical Compilers for Topological Quantum Information Processing	S. Devitt
09:40 – 10:00	Study of the initialization of an electron spin	Y. Masumoto
10:00 – 10:20	Quantum non-equilibrium statistical physics and thermodynamics in the control and detection of quantum coherent processes	Y. Utsumi
10:20 – 10:35	Break	
10:35 – 10:55	Research on charge-state controlled single-photon device toward realizing long-distance transfer of electron spin state	T. Nakaoka
10:55 – 11:15	Toward Manipulation of Quantum Spin Information in Biomolecules	H. Matsuoka
	Co-Research Proposals (Details attached)	
11:30 – 12:30	Proposal (Theme No. 1～4)	
12:30 – 13:15	Luncheon meeting	
13:15 – 15:40	Proposal (Theme No. 5～14)	
15:40 – 15:55	Break	
15:55 – 17:15	Proposal (Theme No. 15～18)	
17:15 – 17:30	Closing speech	J.S. Tsai

Details of Co-research Proposals

No.	Time	Theme	Speaker	Proposed Group Leader	Co-research G (Outside G)
1	11:30 – 11:45	Spin Amplification	M. Negoro	M. Kitagawa	(K. Fujii) (Y. Matsuzaki)
2	11:45 – 12:00	Quantum Simulation with Nuclear Spins	A. Kagawa	M. Kitagawa	(S. Miyashita) (M. Ohzeki)
3	12:00 – 12:15	Automated Generation of Dynamical Decoupling Sequences	Y. Tabuchi	M. Kitagawa	J.S. Tsai N. Mizuochi
4	12:15 – 12:30	Evolution of Technologies by Domain Fusion	T. Miyazaki	J.S. Tsai	M. Kitagawa S. Saruwatari S. Shimizu
5	13:15 – 13:35	Molecular designs and spin properties of ensemble molecular spins couplerd to QS qubits	T. Takui	M. Kitagawa	J.S. Tsai
6	13:35 – 13:55	Heterogeneous Quantum Repeater Hardware	R. Van Meter	R. Van Meter	J.S. Tsai
7	13:55 – 14:10	Work and fluctuation in quantum switches	Y. Tokura	Y. Tokura	Y. Utsumi

8	14:10 – 14:25	Relaxation processes in silicon qubits	Y. Tokura	Y. Tokura	T. Kodera
9	14:25 – 14:40	Self-ordering of nuclear spins by electron spin pumping	Y. Tokura	Y. Tokura	K. Ono
10	14:40 – 14:45	Adaptive quantum estimation	S. Takeuchi	S. Takeuchi	A. Fujiwara
11	14:45 – 14:50	Coupling between an optical nanofiber and a single ion	S. Takeuchi	S. Takeuchi	S. Urabe
12	14:50 – 15:05	Entanglement generation between an atomic ensemble and a photon in telecommunication band	T. Yamamoto	M. Koashi	Y. Takahashi
13	15:05 – 15:20	Single-site manipulation by light-shift of a laser beam with inhomogeneous intensity distribution	Y. Takahashi	Y. Takahashi	S. Urabe
14	15:20 – 15:40	Mechanical manipulation of ions using optical-lattice potentials	K. Toyoda	S. Urabe	Y. Takahashi
15	15:55 – 16:15	A study on a novel photonic quantum information processing by comparing totally different physical impremention s	S. Takeuchi	S. Takeuchi	J.S. Tsai (K. Koshino)
16	16:15 – 16:35	A collaborational study on diamond NV centers towards the quantum control of photons and solid state quantum bits.	S. Takeuchi	S. Takeuchi	N. Mizuochi (K. Koshino)
17	16:35 – 16:55	Coupling between laser-cooled ions and an optical nanofiber	U. Tanaka	S. Urabe	S. Takeuchi
18	16:55 – 17:15	Quantum state manipulation of ions in a magnetic field gradient	A. Noguchi	S. Urabe	Y. Tokura

Participants List:

	name	affifiation		name	affiliation
1	Y. Tokura	University of Tsukuba	32	S. Takeuchi	Hokkaido University
2	M. Kitagawa	Osaka University	33	R. Okamoto	Hokkaido University
3	Y. Morita	Osaka University	34	M. Fujiwara	Hokkaido University
4	A. Kagawa	Osaka University	35	H. Zhao	Hokkaido University
5	M. Negoro	Osaka University	36	A. Fujiwara	Osaka University
6	Y. Tabuchi	Osaka University	37	M. Mori	Japan Atomic Energy Agency
7	R. Ikuta	Osaka University	38	N. Mizuochi	Osaka University
8	Y. Takahashi	Kyoto University	39	Y. Suzuki	Osaka University
9	K. Shibata	Kyoto University	40	T. Shimooka	Osaka University
10	R. Inoue	Kyoto University	41	Y. Doi	Osaka University
11	Y. Seki	Kyoto University	42	S. Mori	Osaka University
12	T. Takui	Osaka City University	43	K. Nagao	Osaka University
13	K. Satoh	Osaka City University	44	T. Fukui	Osaka University
14	S. Nakazawa	Osaka City University	45	K. Ohno	RIKEN
15	K. Sugisaki	Osaka City University	46	S. Amaha	RIKEN
16	K. Toyota	Osaka City University	47	R. Van Meter	Keio University
17	Y. Kanzaki	Osaka City University	48	S. Devitt	NII
18	L.E. Hosseini	Osaka City University	49	K. Nemoto	NII
19	A. Tanaka	Osaka City University	50	Y. Masumoto	University of Tsukuba
20	S. Yamamoto	Osaka City University	51	H. Matsuoka	Tohoku University
21	T. Yamane	Osaka City University	52	T. Nakaoka	Sophia University
22	A. Noguchi	Osaka University	53	Y. Utsumi	Mie University
23	T. Mukai	NTT Basic Research Laboratory	54	K. Misawa	Tokyo University of Agriculture and Technology
24	S. Urabe	Osaka University	55	J.S. Tsai	RIKEN / NEC Smart Energy Labs.
25	U. Tanaka	Osaka University	56	F. Yoshihara	RIKEN
26	K. Fujii	Osaka University	57	T. Miyazaki	RIKEN
27	K. Toyoda	Osaka University	58	T. Yamamoto	RIKEN / NEC Smart Energy Labs.
28	K. Tateishi	Osaka University	59	K. Inomata	RIKEN
29	Y.Z. Yap	Osaka University	60	P. Billangeon	RIKEN
30	M. Koashi	The University of Tokyo	61	Z. Lin	RIKEN
31	T. Yamamoto	Osaka University	62	S. Yanai	University of Tsukuba