

QUTIP 2024 DEVELOPERS WORKSHOP

RECENT UPDATES, VERSION 5, AND FUTURE PLANS



March 25-29 2024 we are hosting the 2024 QuTiP developers workshop in RIKEN, Japan. This will feature talks, hackathons, and discussion panels about the QuTiP v5 release and the future development roadmap for QuTiP.

This is primarily an invitation-only workshop aimed at active QuTiP developers, but if you are interested in attending and contributing to the future development of QuTiP, please contact the local organizers @ nwlambert@riken.jp & paul.menczel@riken.jp

For more information on the QuTiP project see www.qutip.org.

SPEAKERS & ATTENDEES (TENTATIVE)



Simon Cross

Zurich Instruments



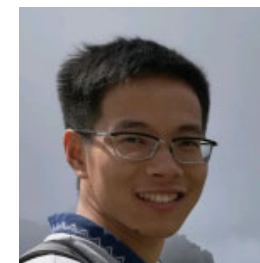
Alex Pitchford

Aberystwyth



Nathan Shammah

Unitary Fund



Boxi Li

Jülich



Eric Giguère

Sherbrooke

Asier Galicia

Jülich

Patrick Hopf

Munich

Yi-Te Huang

NCKU, Taiwan

ADDITIONAL SPEAKERS:

Emil Vatai (R-CCS, RIKEN)

Alberto Mercurio (EPFL)

Enrico Rinaldi (Quantinuum)

Spencer Churchill (ION-Q)

Chien-Yuan Chang (National Tsing Hua University, Taiwan)

Fenton Clawson (West Virginia University)

SPECIAL GUESTS:

Robert Johansson (Rakuten)

LOCAL ORGANISERS

Franco Nori, Neill Lambert, Paul Menczel

Hosted by RIKEN's Center for Quantum Computing (RQC) & Cluster for Pioneering Research (CPR)

Supported by JST Moonshot

PROGRAM

All talks will be held in Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室(345-347) C01 RIKEN https://www.riken.jp/en/access/wako-map/#campus_map

Discussions and hackathons will be held in a separate meeting room,Wako Main Research 1F 124-126 Seminar Room/研究本館1階 特別会議室(124-126).

Note that these rooms may change if capacity is reached, this site will be updated if so.

MONDAY 25TH OF MARCH: NEW APPLICATIONS, FEATURES, AND IMPROVEMENTS

CHAIRS: FRANCO NORI

Time	Speaker	Title	Location
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10:00 AM		Coffee and Discussions	Wako Main Research 3F coffee room
11:40 PM		Lunch	Main cafeteria
1:25 PM	Franco Nori	Welcome and opening	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)
1:30 PM	Eric Giguère	The Road to Qutip 5	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)
2:00 PM	Alex Pitchford	Bayesian optimization of non-classical optomechanical correlations	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)
2:30 PM	–	Coffee Break	
3:30 PM	Simon Cross	Simulating QPUs: A guiding star for QuTiP 6	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)
4:00 PM	Patrick Hopf	Qutip-QOC and the GOAT algorithm	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)

TUESDAY 26TH OF MARCH: QUTIP GPU, HIGH-PERFORMANCE COMPUTING, OPEN SOURCE COMMUNITY, JULIA

CHAIRS: NEILL LAMBERT AND BOXI LI

Time	Speaker	Title	Location
10:00 AM	–	Discussion and issue squashing	Wako Main Research 3F discussion area outside seminar room
11:40 PM	–	Working Lunch (Indian Curry)	3F coffee room
1:30 PM	Paul Menczel	Trajectory Solvers: HPC and other improvements	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室(345-347)
2:00 PM	Eric Giguère	JAX	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室(345-347)
2:30 PM		Coffee Break	Wako Main Research 3F coffee room
3:00 PM	Nathan Shammah	Unitary Fund: Updates on the quantum open source ecosystem	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室(345-347)
3:30 PM	Emil Vatai	Development of Radicalpy and the lessons learned	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室(345-347)

4:00 PM	Alberto Mercurio	Quantum toolbox for Julia	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室(345-347)
4:30 PM	Yi-Te Huang	An efficient Julia framework for hierarchical equations of motion in open quantum systems	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室(345-347)

WEDNESDAY 27TH OF MARCH: QUTIP USE IN EXPERIMENTS AND QUANTUM INFORMATION

CHAIRS: PAUL MENCZEL AND ASIER GALICIA

Time	Speaker	Title	Location
10:00 AM		Coffee and Discussions	Wako Main Research 3F coffee room/discussion area outside seminar room
11:40 AM		Lunch	Main cafeteria
1:30 PM	Asier Galicia	On the design and characterization of a two qubit system.	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)
2:00 PM	Boxi Li	Pulse-level quantum circuit simulation with qutip-qip	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)
2:30 PM		Coffee Break	
3:00 PM	Enrico Rinaldi	Parameter estimation from quantum-jump data using neural networks	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)
3:30 PM	Spencer Churchill	IonQ + QuTiP - QIP < 3	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)
4:00 PM	Chien-Yuan Chang	Cryogenic qubit controller and fidelity estimation for spin-based qubit devices	Wako Main Research 3F 345-347 Seminar Room/研究本館3階 セミナー室 (345-347)

THURSDAY 28TH OF MARCH: QUTIP ROADMAP

CHAIR: ALEX PITCHFORD AND ERIC GIGUÈRE

THIS IS AN OPEN DISCUSSION AND WORKING SESSION TO PLAN OUT PRIORITIES FOR V6 AND BEYOND. WILL INCLUDE A SESSION ON THE NEW FLOQUET FLIMESOLVER BY FENTON CLAWSON, PLANS FOR QUTIP-QOC AND GSOC PROJECTS 2024 AND 2025.

Time	Speaker	Title	Location
10:30 AM	Discussion Panel	QuTiP roadmap to v6 discussions	Wako Main Research 3F discussion area outside seminar room
11:00 AM	Fenton Clawson	- A new Floquet Lindblad solver	Wako Main Research 3F discussion seminar room
11:30	Discussion Panel	Floquet methods in QuTiP	
1!:40 AM		LUNCH	Main cafeteria
1:00 PM	Discussion Panel	Roadmap - GSOC 2024 and beyond, priorities for data layers, and more	Wako Main Research 3F discussion area outside seminar room
2:30 PM		Coffee Break	Wako Main Research 3F coffee room
3:00 PM	Discussion Panel	Roadmap continued	Wako Main Research 3F discussion area outside seminar room

FRIDAY THE 29TH: ANCILLARY SESSION

CHAIR: SIMON CROSS

This is an open session on final issues for v5 release and the associated paper.

Time	Speaker	Title	Location
10:00 AM	—	Issue squashing and paper discussions	Wako Main Research 3F discussion area outside seminar room
11:40 PM		LUNCH	
1:30 PM	Peter Groszkowski	tentative: "SC Qubits and non-Markovian methods"	Wako Main Research 3F seminar room
2:30 PM		Coffee Break	
3:00 PM	—	Issue squashing and paper discussions	Wako Main Research 3F discussion area outside seminar room