

INVITATION

# NEXT GENERATION OF QUANTUM COMPUTING

INTERNATIONAL SYMPOSIUM  
ON QUANTUM COMPUTING

28TH AND 29TH OF AUGUST 2022  
TOKYO, JAPAN

# ABOUT THE SYMPOSIUM

# TOKYO IN AUGUST 2022

„Next Generation of Quantum Computing“ marks the beginning of new international cooperation in the field of quantum computing. The symposium aims to provide an open forum and bring together scientists from Japan and Germany in order to nurture a discussion about the next generation of quantum computers and the challenges to be accomplished in this field.

The event is initiated by the Japanese organiser Ishikuro Laboratory of the Keio University and the German organiser Institute for CMOS Design of Technical University of Braunschweig. The event is supported by the partners DWIH Tokyo, Tokyo University and NBS Semiconductor.

All partners conduct cutting-edge research, developing hard- and software to realise highly scalable quantum computers. Presentations held during the symposium range thematically from high-frequency electronics for qubit control for superconductive and ion-trap-based quantum computers to newly developed toolchains

allowing high-level programming of quantum algorithms.

Besides the partners, invited keynote speakers from academia and private sector will contribute to the success of the event through their various backgrounds and methodologies. The symposium „Next Generation of Quantum Computing“ features seven sessions with general speakers and invited speakers at one location. This allows its attendees to deep dive into the field of quantum computing and to discuss presented topics between the sessions.

The symposium is an open get-together of highly qualified quantum computer research experts who aim to present and exchange their current research efforts.

# HOW TO CONTRIBUTE

SPEAKER

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Quiaem qui di occus, ut temporp oressunt  
untum faccusam essinci endaepudis ex-  
perep ersperibea quatisi tatempo rporia  
quatiat.

SPONSOR

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Quiaem qui di occus, ut temporp oressunt  
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perep ersperibea quatisi tatempo rporia  
quatiat.

ATTENDEE

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Quiaem qui di occus, ut temporp oressunt  
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quatiat.

THE  
BEGINNING  
OF NEW  
INTERNATIONAL  
COOPERATION  
IN THE  
FIELD OF  
QUANTUM  
COMPUTING.

ONE LOCATION  
TWO DAYS  
SEVEN SESSIONS  
&  
UNLIMITED  
RESEARCH  
EXCHANGE

SYMPOSIUM  
TIMELINE

**Monday, 29th of August**

***Ion-Trap related Quantum Computing***

9:00	Opening by <b>Dr. Lothar Mennicken</b> , German Embassy Tokyo	Opening by <b>Axel Karpenstein</b> , DWIH Tokyo
9:30	<b>Silpa Muralidharan</b> , Osaka University <i>The quantum phase transition between MOTT insulator and superfluid in JCH system using trapped ion</i>	<b>Prof. Kenji Toyoda</b> , Osaka University <i>Quantum simulations using trapped ions and technical aspects concerning them</i>
11:00	Coffee break	
11:30	<b>Dr. Celeste Torkzaban</b> , LUH <i>Quantum Valley Lower Saxony: Collaborative development of a trapped-ion quantum computer and additional quantum technologies</i>	<b>Niklas Orłowski</b> , LUH <i>Vibrationally-decoupled cryogenic surface-electrode ion trap for scalable quantum computing and simulation</i>
13:00	Lunch	
14:30	<b>Peter Toth</b> , TU Braunschweig <i>Integrated microwave source for ion-trap based qubit controll</i>	<b>Prof. Vadim Issakov</b> , TU Braunschweig <i>A high speed bit-pattern generator for Josephson Arbitrary Waveform Synthesizer (JAWS)</i>
16:00	Coffee break	
16:30	<b>Dr. Wolfgang Furtner</b> , Infineon Technologies AG <i>System architecture for trapped ion quantum computing</i>	<b>Dr. Sebastian Luber</b> , Infineon Technologies AG <i>A semiconductor corporation view on quantum computing</i>
18:30	Dinner	

**Tuesday, 30th of August**

***Superconductivity related Quantum Computing***

9:00	<b>Prof. Naoki Yamamoto</b> , Keio University <i>Application of quantum computer</i>	<b>Dr. Munehiro Tada</b> , NanoBridge Semiconductor, Inc. <i>Cryogenic FPGA</i>
10:30	Coffee break	
11:00	<b>Prof. Hiroki Ishikuro</b> , Keio University <i>Device characterization/ Device modelling cryogenic PDK</i>	<b>Masayuki Ichikawa</b> , Keio University <i>Monitoring technique of self-heating in bulk MOS-FETs at cryogenic temperatures</i>
12:30	Lunch	
14:00	<b>Prof. Ken Uchida</b> , University of Tokyo <i>Device characterization for cryogenic CMOS, investigating self heating phenomena</i>	<b>Prof. Atsushi Noguchi</b> , University of Tokyo <i>Hybrid quantum systems with trapped electrons via superconducting circuits</i>
15:30	Coffee break	
16:00	<b>Podium Discussion</b>	

## SYMPOSIUM

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28th and 29th of August 2022  
Tokyo, Japan

## FURTHER INFORMATION

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Detailed information on speakers and sessions will be published in June 2022

## ORGANISER

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Institute for CMOS Design, Technical University of Braunschweig  
Ishikuro Laboratory, Keio University



Keio University  
Department of Electronics and Electrical Engineering

Ishikuro Laboratory

## PARTNERS

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DWIHTokyo

Tokyo University  
NBS Semiconductor