INVITATION

Quantum technology forms the technological basis for the development of quantum computers, quantum sensors, quantum cryptography, and quantum communication systems. These technologies have the potential to disrupt a variety of existing industries. For example, quantum computers promise new possibilities for solving computing-intensive or previously not efficiently solvable problems. In the conference

„Quantum Technology – Impact on Computing and Communication"

on Thursday, the 5th of July 2018, 9:00 to 18:00

at the IBM Watson IoT Center, Mies-van-der-Rohe-Straße 6, 80807 München

the MÜNCHNER KREIS addresses both technological and business opportunities and challenges. Leading international experts will present and discuss quantum technology from different perspectives in order to highlight this disruptive potential. After a technological introduction, topics such as the development of the quantum internet and the application of quantum communication will be presented. Different companies and research institutions will illustrate concrete approaches to the development of quantum technologies. Experts will provide example applications from the security, automotive, IoT (industrial) and healthcare industries.

This conference will provide perspectives from theoretical computer science, cryptography, and data security as a basis to discuss future opportunities, challenges, and risks of quantum technology.

We invite you to attend this conference and kindly ask you to register directly under:

www.muenchner-kreis.de.

The program is enclosed. Please feel free to forward this invitation to other interested persons.

We look forward to exciting presentations and discussions!

Best regards,

Prof. Dr. Helmut Krcmar   Prof. Dr. Michael Dowling
Chairman of the Research Committee   Chairman of the Board
Member of the Board   MÜNCHNER KREIS e.V.
MÜNCHNER KREIS e.V.

Quantum Technology –
Impact on Computing and Communication

July 5, 2018
IBM Watson IoT Center
Mies-van-der-Rohe-Straße 6, 80807 München

Program

09:00   Pre-Conference Tutorial
Introduction to Quantum Technology
Dr. Joseph Reger, Fujitsu Technology Solutions GmbH, Munich

10:00   **Welcome and Introduction**
Prof. Dr. Helmut Krcmar, Technical University of Munich and MÜNCHNER KREIS

10:15   **The EU Strategy for Quantum Technologies**
Prof. Dr. Tommaso Calarco, University of Ulm

10:45   **Race to Build the Quantum Internet**
Prof. Dr. Jonathan Dowling, Louisiana State University, USA

11:30   **Wide Area Quantum Communication**
Prof. Dr. PENG Chengzhi, University of Science and Technology of China, Hefei Shi, China

12:15   **Teaching How to Use Quantum Technology**
Arnaud Bertrand, Atos SE, Paris, France

12:30   **L u n c h** (with Quantum Machine Learning Demonstration/Atos SE and IBM Quantum Experience (QX), IBM Q)

13:30   **Different Approaches to Quantum Technologies**

Dr. Astrid Elbe, Intel Labs Europe, Munich

Dr. Markus Hoffmann, Google Germany GmbH, Munich

Dr. Peter-Hans Roth, IBM Q, Böblingen

Dr. Colin P. Williams, D-Wave Systems Inc., Burnaby, Canada

Prof. Dr. Hugo Zbinden, Université de Genève and ID Quantique SA, Switzerland

14:45	**Business Use Cases**
	Ingolf Wittmann, IBM Q Network, Böblingen
	Dr. Matthias Ziegler, Accenture GmbH, Munich
	Dr. Detlef Houdeau, Infineon Technologies AG, Munich

15:30	**C o f f e e B r e a k**

15:50	**Security with and from Quantum Technology**
	Post Quantum Cryptography **Stefan-Lukas Gazdag/Dr. Daniel Loebenberger**, genua GmbH, Cologne
	Satellite-based Quantum Key Distribution **PD Dr. Christoph Marquardt**, Max Planck Institute for the Science of Light, Erlangen
	Secure Communication via Pico-Satellites - using Quantum Keys and entangled Photons **Prof. Dr. Klaus Schilling,** University of Würzburg
	Factorization in quantum poly time with fewer qubits **Prof. Dr. Jean-Pierre Seifert**, Technical University of Berlin

17:10	**Discussion Forum**

17:50	**Summary and Closing** **Prof. Dr. Michael Dowling**, University of Regensburg and MÜNCHNER KREIS

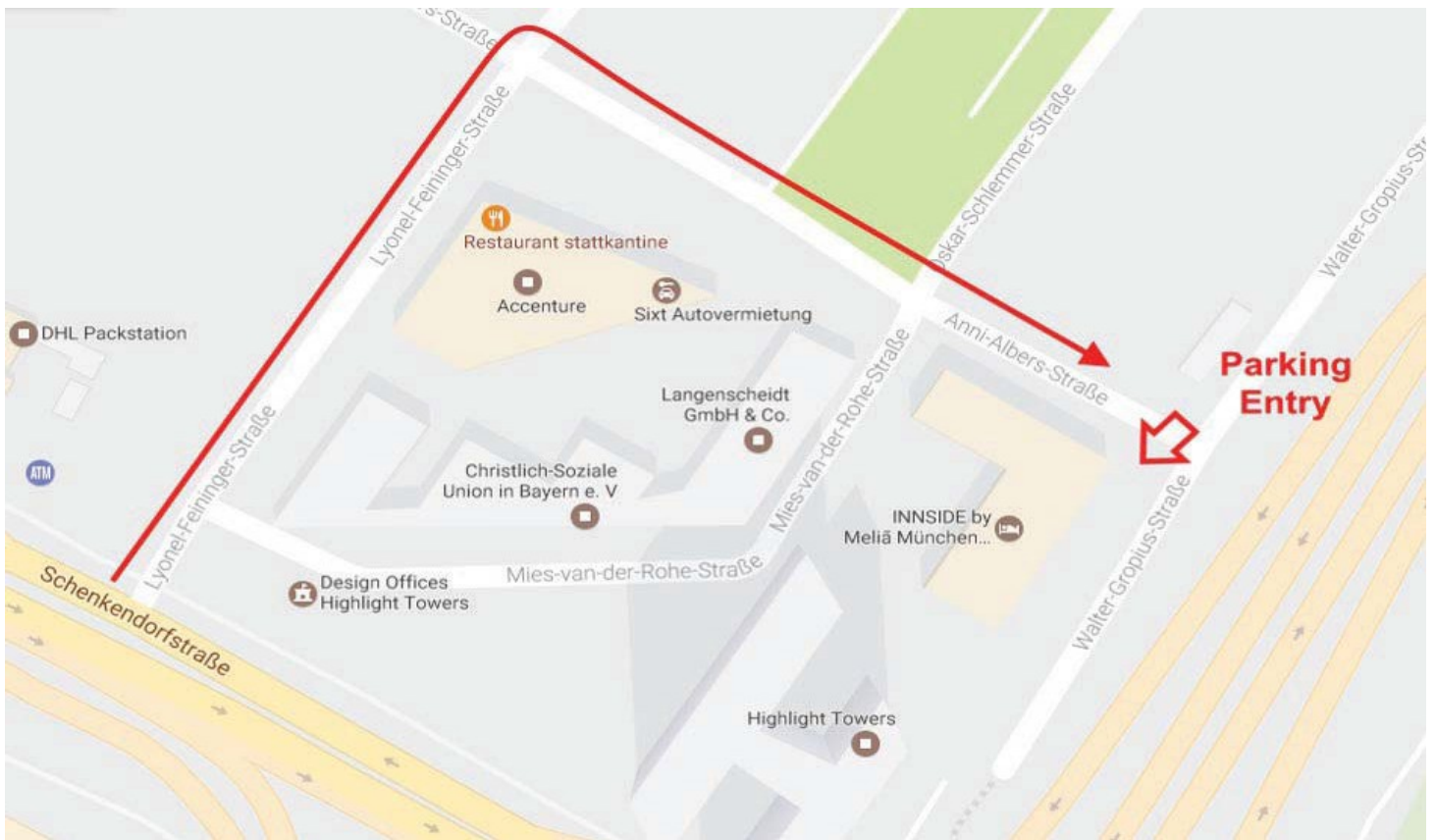| 18:00	**Reception**

General Information

Conference
"Quantum Technology – Impact on Computing and Communication"

July 5, 2018, from 9 a.m. to 6 p.m.
IBM Watson IoT Center, Mies-van-der-Rohe-Straße 6, 80807 Munich

Conference language:	English
Organizer:	MÜNCHNER KREIS e.V. Tal 16, 80331 Munich, phone +49 89 223238, fax +49 89 225407, office@muenchner-kreis.de
Registration:	Please register on our homepage www.muenchner-kreis.de by **July 5, 2018**
Participation fee	**290.00 €** per person. The fee includes the conference catering. VAT is **not** included in the fee.
Payment:	Payment must be made when registering on our homepage www.muenchner-kreis.de. A confirmation and invoice will be sent upon receipt of registration.
Cancellation:	To cancel your registration, please contact us at office@muenchner-kreis.de. Cancellations up to 7 days before the conference are subject to an administration fee of 50.00 €. After that date, no refunds will be issued. A representative may take the registered participant's place.
On-site registration:	The conference office is open from 8:30 a.m. to 6 p.m.
Hotels:	Tourismusamt München, phone +49 89 233-96500, www.muenchen.de/tourismus
Directions:	Underground station: U6 "Nordfriedhof" For driving directions, see attached PDF document. Further information: Public transport "Münchner Verkehrsbetriebe": www.mvv-muenchen.de Munich airport: www.munich-airport.de
Further information:	Photos, films and videos made during the conference will be used for the work of the MÜNCHNER KREIS and will be published on the homepage of the MÜNCHNER KREIS for public relations purposes and may be passed onto representatives of the media. By registering for the conference, participants give their consent to these recordings and/or photos and their use.

IBM Watson IoT Headquarters, Munich DE

Address: Highlight Towers
Mies-van-der-Rohe-Straße 6,
80807 Munich

Driving directions:

– From highway / motorway A9: take the exit München-Schwabing
– From Lyonel-Feininger-Straße turn right into Anni-Albers-Straße and right again into Walter-Gropius-Straße
– Drive into the underground garage for parking and take a ticket at the counter*
  IBM parking spaces are located on the 3rd basement level (-3)
– From the parking area go to the ground level of Tower 1 and register at the reception in order to get access to the Watson IoT Center

* Ticket can be validated at the reception