Fraunhofer IAF

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Newsletter

# MetaboliQs

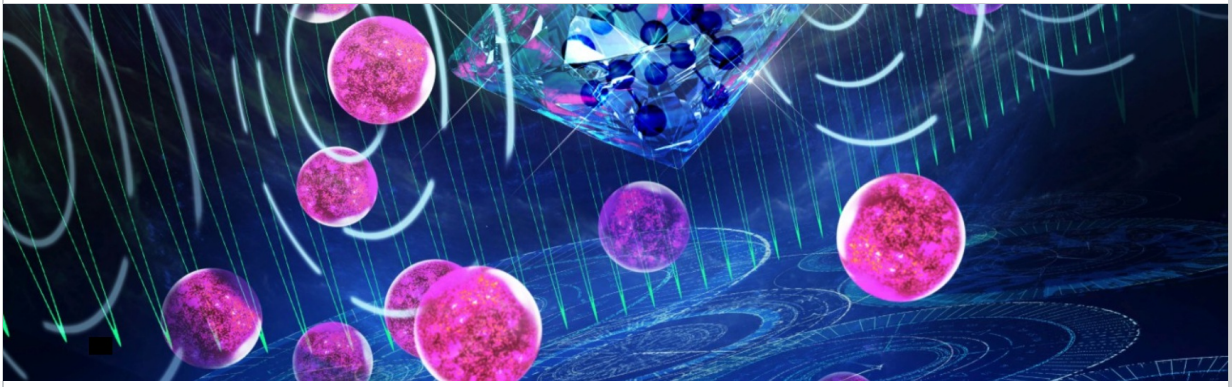
**Quantum technology for human needs**

cardiovascular diseases are one of the most common causes of death worldwide. Therefore, it is necessary to develop personalized medical solutions to improve the chances of curing patients. In order to do so, the metabolic process of heart tissue needs to be understood and observed on a molecular level. Current methods do not allow this in high resolution, and they furthermore rely on radioactive substances.

The project MetaboilQs develops an innovative diamond polarizer that is able to work at room temperature with a 160-times higher efficiency, offering a polarization that is 40-times faster and 4-times cheaper than before. By those means, quantum technology is being utilized for human needs.

In this newsletter we will inform you roughly quarterly on news and novel findings within the project. We wish you an interesting read.

Laura Hau
*Project Communications*



## The MetaboliQs project

A cooperation of Fraunhofer IAF, NVision Imaging Technologies GmbH, Element Six Ltd., Hebrew University of Jerusalem, Bruker BioSpin GmbH, ETH Zurich and TU Munich

### Precision diagnostics and personalized treatment using quantum physics

The MetaboliQs project will leverage the transformative features of diamond nitrogen vacancies (NV), such as high quantum coherence and quantum control, to offer a breakthrough in Cardiac Hyperpolarized MRI: A low cost and high-throughput diamond polarizer that can be used with any MRI scanner and shows results within minutes instead of hours required per procedure. MetaboliQs brings together a world-class multidisciplinary consortium and is part of the »Quantum Flagship« funded by the European Union.

FIND OUT MORE IN THE PRESS RELEASE

Interview about MetaboliQs

### In an interview with the EC Dr. Christoph Nebel, project coordinator from the IAF, explaines some of the project's specialties.

All questions were answered by Dr. Christoph Nebel from the Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., Germany.

FIND OUT MORE IN THE INTERVIEW


MetaboliQs is part of the Quantum Flagship. The Second Quantum Revolution is unfolding now. The Quantum Flagship is driving this revolution in Europe.


This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 820374.

EQTC 2019

## The first conference of the European Quantum Flagship

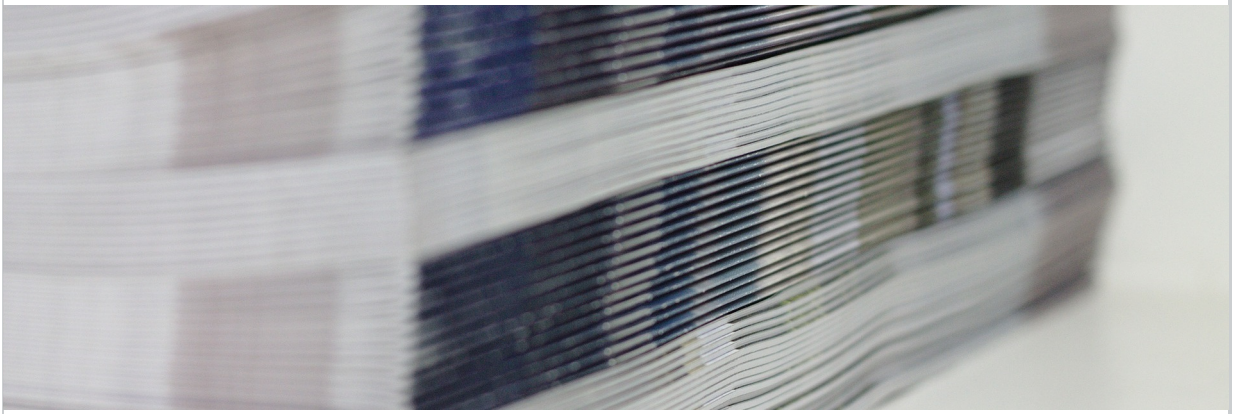
EQTC 2019 is the first international conference of the European Quantum Flagship. It will provide a full coverage of European and International most prominent and recent advances in quantum technologies. Basic science, communication, computing, simulation, sensing areas will each be covered through plenary and parallel sessions, as well as poster sessions.

The conference will start on **Monday, February 18th** at 8:30 and will finish on **Friday, February 22nd** at 15:00.

The conference registration and welcome buffet will take place on Sunday, February 17th starting from 17:00.

Find out more about the Program on the event website.

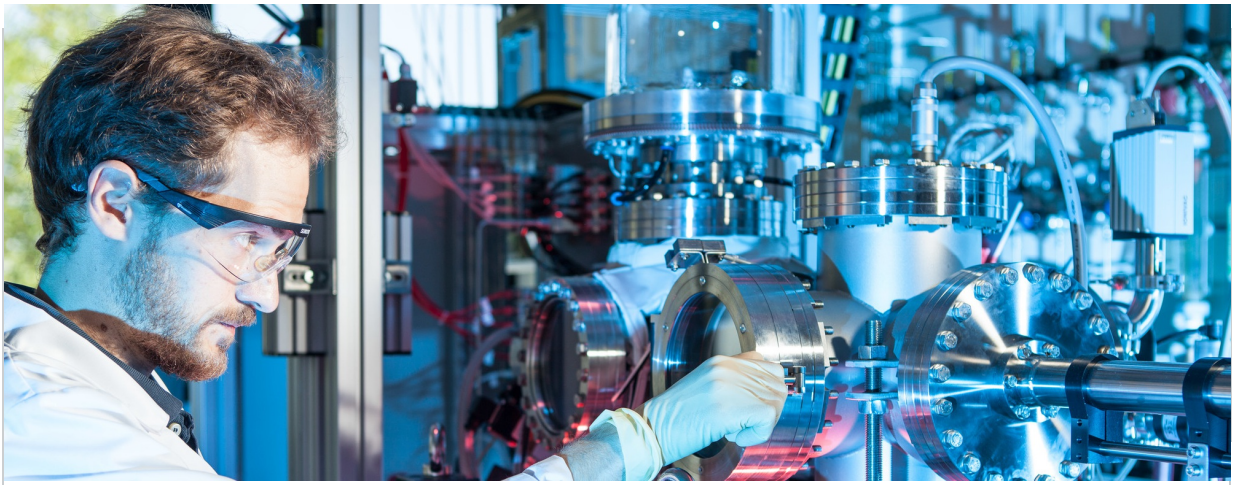
EVENT WEBSITE



## Current publications

Y. Romach, A. Lazariev, I. Avrahami, F. Kleißler, S. Arroyo-Camejo, and N. Bar-Gill,
**Measuring Environmental Quantum Noise Exhibiting a Nonmonotonic Spectral Shape**, In: Phys. Rev. Applied 11 (2019), 014064, DOI:https://doi.org/10.1103/PhysRevApplied.11.014064.

Gerrer, Thomas
**Transfer von AlGaN/GaN-Hochleistungstransistoren auf Diamant**
DISSERTATION



## Job offers

**Fraunhofer IAF - Scientist for diamond heteroepitaxy (m/f/d)**

**Fraunhofer IAF - Scientist for magnetron sputter epitaxy (MSE) of III-nitrides (m/f/d)**

## Contact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