

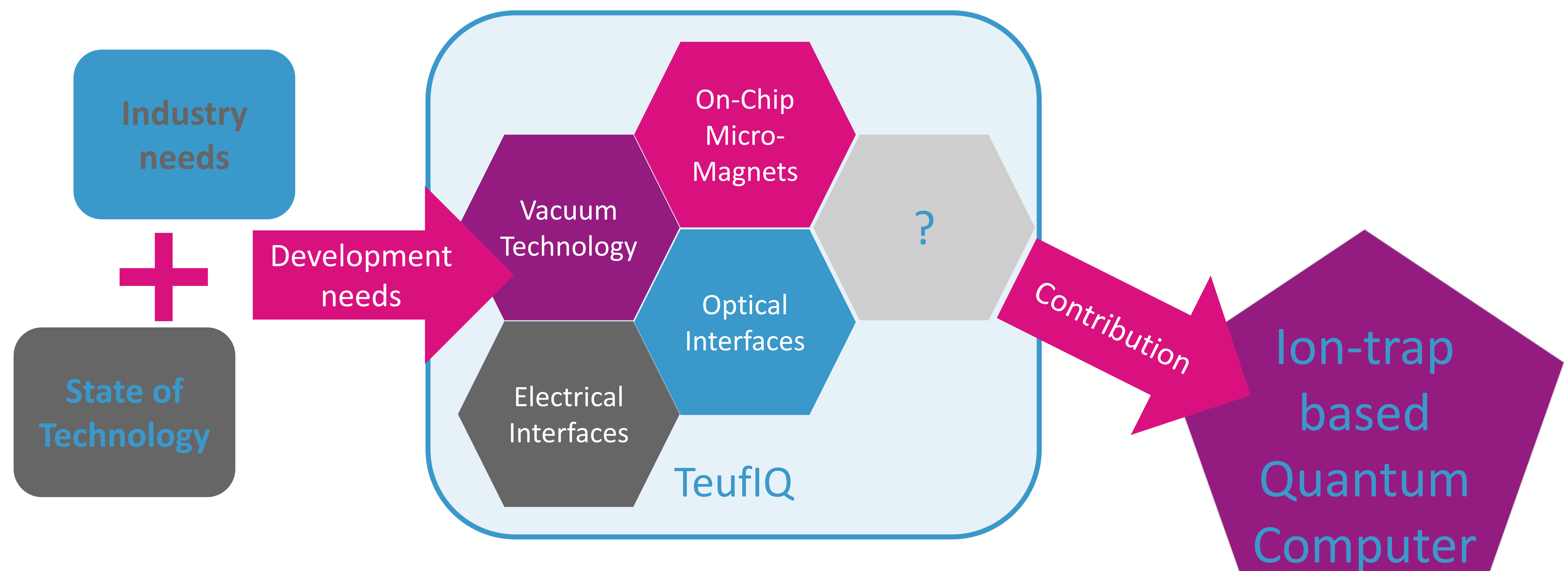
# TeufIQ – Technologieentwicklung und -unterstützung für Ionenfallenbasierte-Quantencomputer

Andreas Bodschinna\*<sup>1</sup>, Florian Niekiel<sup>1</sup>, Marc Wurz<sup>2</sup>, Jakob Buchheim<sup>1</sup>,

<sup>1</sup>German Aerospace Center (DLR), Institute of Quantum Technologies, Wilhelm-Runge-Straße 10, 89081 Ulm, Germany

<sup>2</sup>Institute of Micro Production Technology (IMPT), Leibniz University Hanover, 30823 Garbsen, Germany

\*andreas.bodschinna@dlr.de



## Overview of TeufIQ project scope

### Abstract

The project TeufIQ aims to support the companies located at the Innovation Center Hamburg (IZHH) in providing research service to build ion-trap quantum computers. Building on the expertise and background in micro- and nanotechnology of the DLR division QT-IMN, we address in close collaboration with the industry partners, open research questions and develop technologies facilitating ion-trap based quantum computers.

### Goal of Project TeufIQ

Next to the explicit goals of the QC-I-Industry-Projects to build prototypes of quantum computers, there are several still unsolved problems regarding the production. This 'day after tomorrow problems' are the scope for this project.

Within the QC-I program TeufIQ will get in contact to each QC-I project and search for topics in the domain of microsystem technology where no solution is available or is out of scope in the QC-I projects. The type of cooperation between companies and TeufIQ can vary between strong co-working to easy specification issuing.

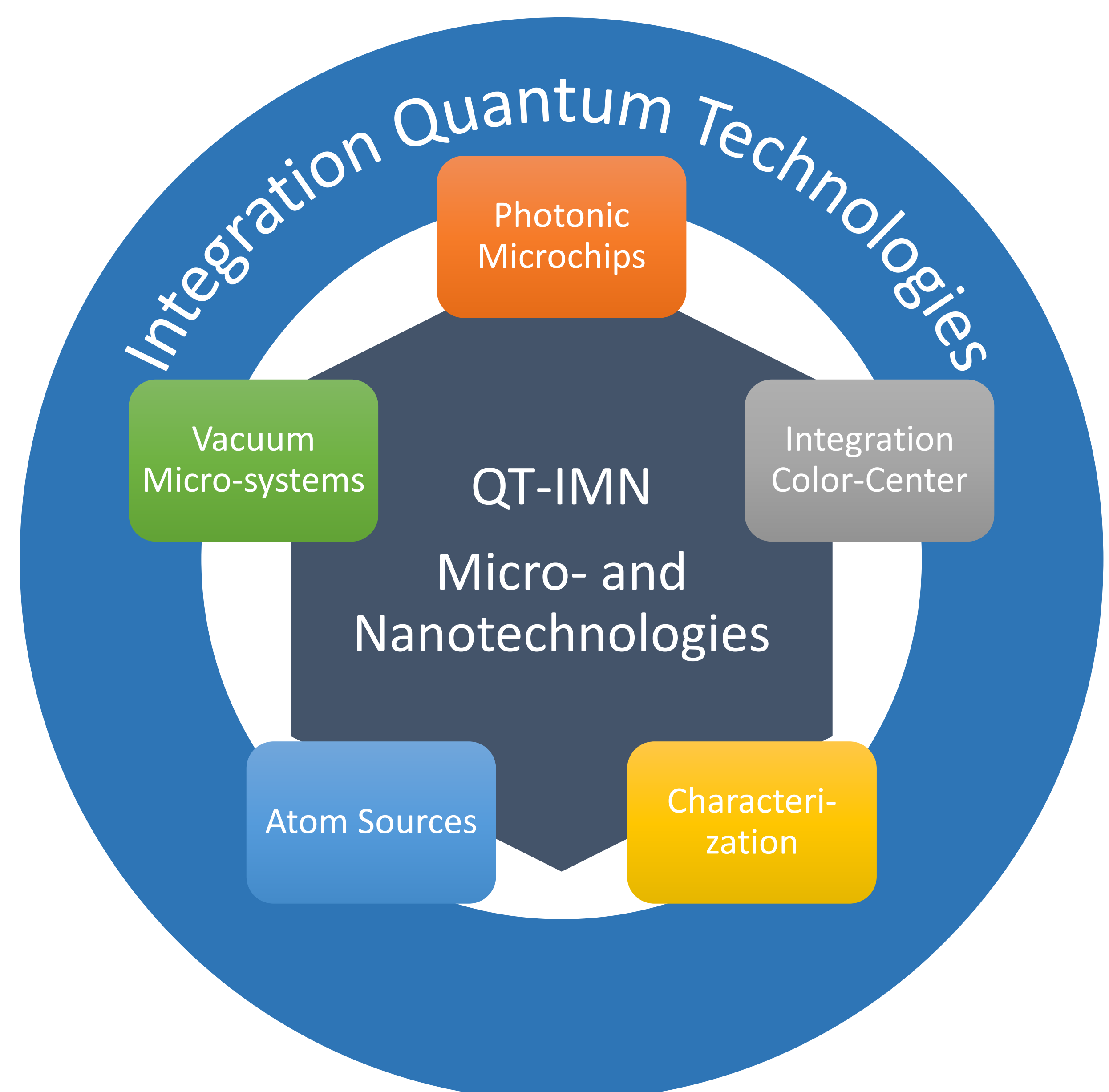
TeufIQ provides a group leader, three scientists and a technician at the IZHH, a clean room in the facility of NXP Hamburg with newest microsystem technology machines and very close Know-how support from IMN in Ulm.

### Planned areas of work within TeufIQ:

- Development of hard magnetically microstructures
  - e.g. quadrupol structures on chip
- Development of electro-optical interfaces
  - e.g. cryo temperature compatible electronic conductors and contacts
- Development of mini- and micro-vacuum technology
  - e.g. miniaturized ultrahigh vacuum housing with optical or electrical interfaces

### Goal of Division QT-IMN

As part of the Institut of Quantum Technology (QT) the research of the department for Integration of Micro- and Nanosystems (IMN) is focused on miniaturization and integration of quantum systems and technology to solve critical steps into real world applications of quantum systems, so called enabling technologies. IMN is operating a clean room in Ulm with standard microsystem technology machines (lithography, thin-film and bonding technology, etc.) that enables the group to develop processes and produce the samples, also. As a cross-sectional division of QT, IMN will support all experiments and solutions to improve technology transfer to industry.



Scope of division QT-IMN Integration and miniaturization of quantum technologies

Gefördert durch:



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