



**Quantenforschung und –
technologie: Potenziale für
Wirtschaft und Wissenschaft**

Dr. Christoph Deutsch
Crystalline Mirror Solutions GmbH

Vienna, December 18, 2017



Redefining precision laser optics

Fundamental quantum science



universität
wien

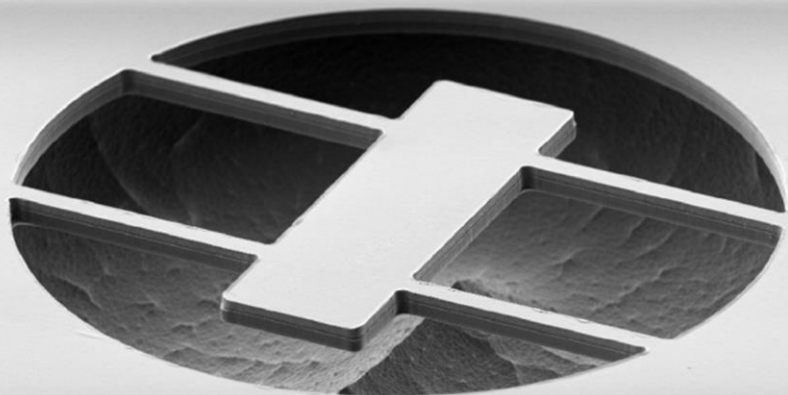


VCQ

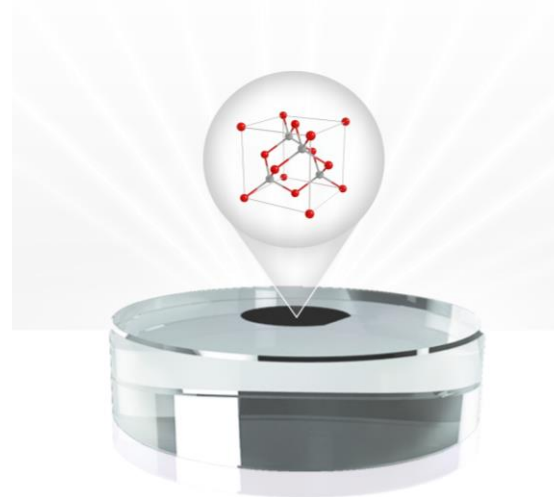
Vienna Center for Quantum
Science and Technology

Semiconductor GaAs/AlGaAs
heterostructures

- Reflectivity >0.9999
- $Q \sim 2 \times 10^4 - 2 \times 10^5$



CRYSTALLINE MIRROR SOLUTIONS



ULTRAPRECISION
measurements of
space and time



THERMAL MANAGEMENT
in industrial lasers



HIGH RESOLUTION
spectroscopy

– **Optimized optical clocks**

as next-generation time and frequency standards

– **Ring-laser gyroscopes**

for commercial aircraft navigation

– **High power lasers**

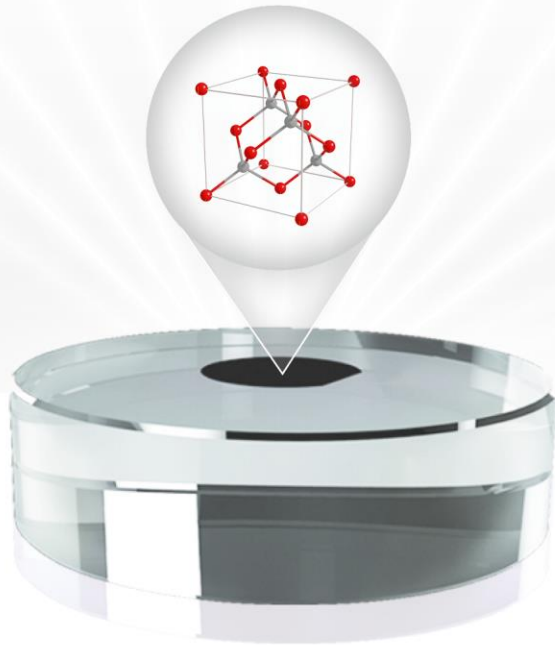
for material processing

– **LIDAR systems**

for airborne and terrestrial applications

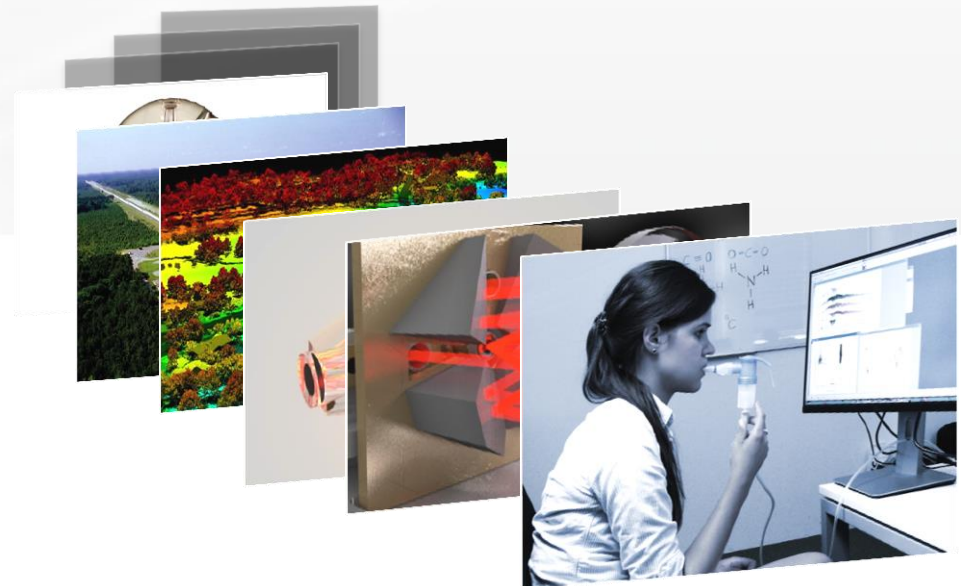
– **Trace-gas analytics**

for science, industry, and medicine



Crystalline Supermirrors

— estd. in 2013 —

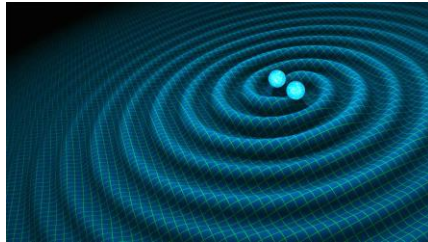


QUANTUM COMMUNICATION



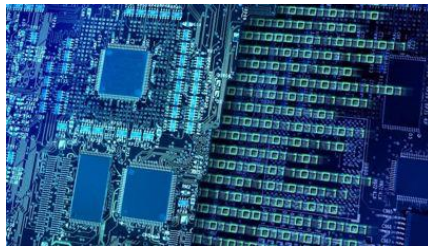
- Cavity-stabilized (crystalline mirrors) photon sources for quantum communication/internet

QUANTUM METROLOGY + SENSING



- Quantum metrology in next generation gravitational wave detectors with low-noise, large-area crystalline mirrors

QUANTUM COMPUTING



- Revolutionary process technology for quantum computing chip architectures

TU Delft

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COPENHAGEN



国立天文台
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Observatory of Japan



MAX-PLANCK-GESellschaft

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