



# SOLID STATE SPIN BASED QUANTUM GYROSCOPES

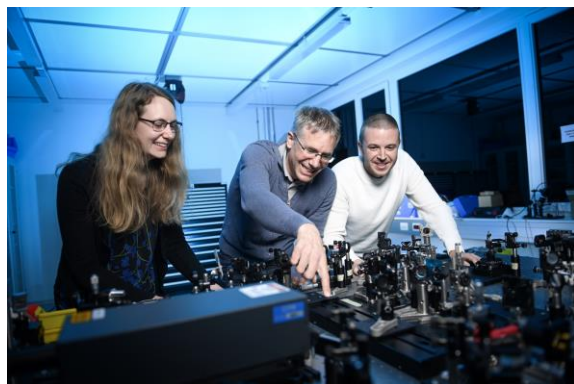
MARIO GRÜNEBERG

# SILICON AUSTRIA LABS

## Vision

Silicon Austria Labs is a world-class research center in **electronic based systems (EBS)**.

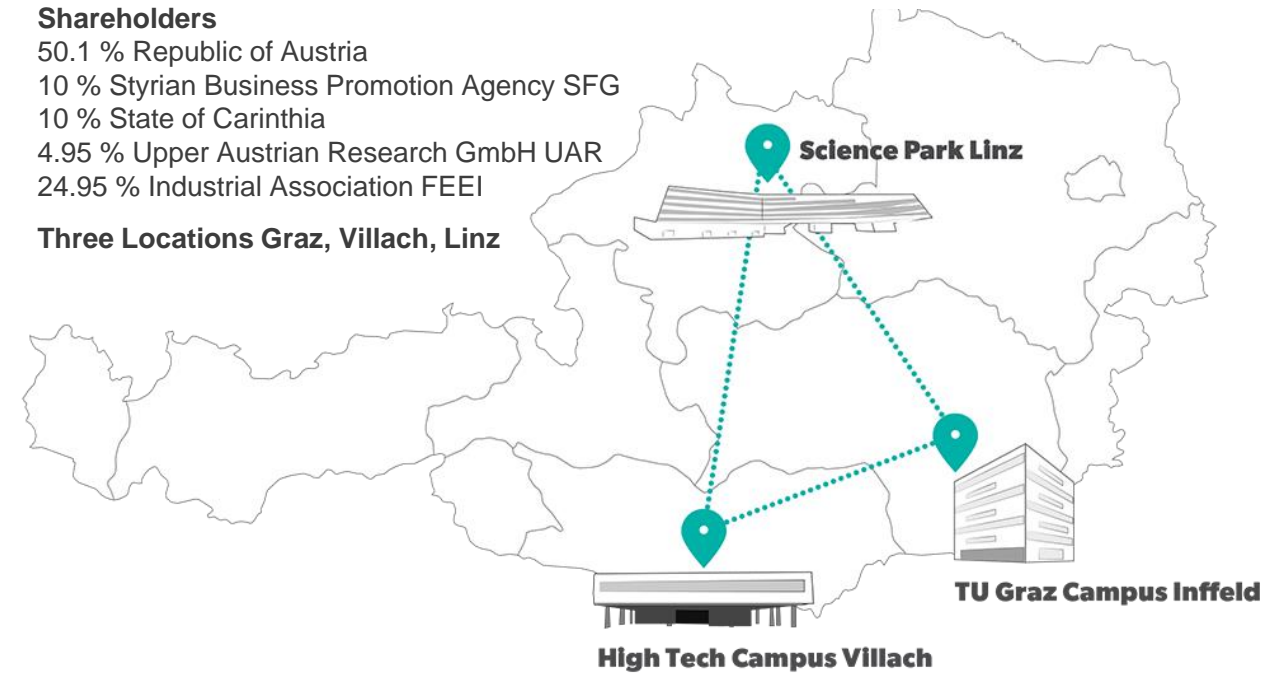
- 3 locations: Villach, Graz and Linz
- 15 research units
- >350 researchers
- >1300 m<sup>2</sup> ISO4 and ISO5 cleanroom facilities
- Focus on **sensors, optics, photonics, RF and MEMS.**



### Shareholders

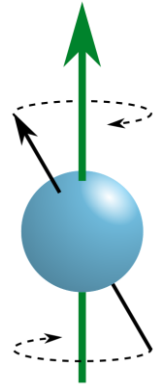
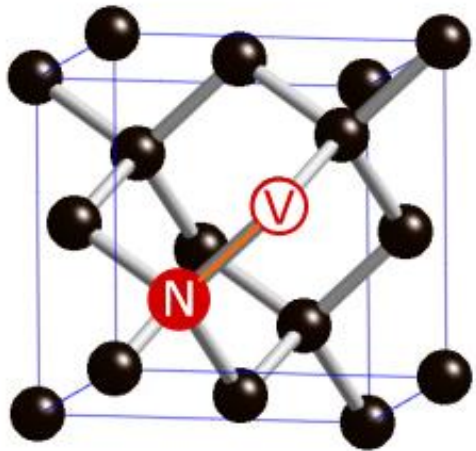
50.1 % Republic of Austria  
10 % Styrian Business Promotion Agency SFG  
10 % State of Carinthia  
4.95 % Upper Austrian Research GmbH UAR  
24.95 % Industrial Association FEEI

### Three Locations Graz, Villach, Linz

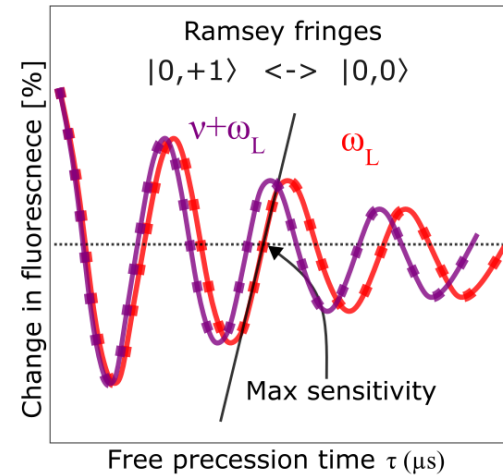


# DIAMOND GYROSCOPE

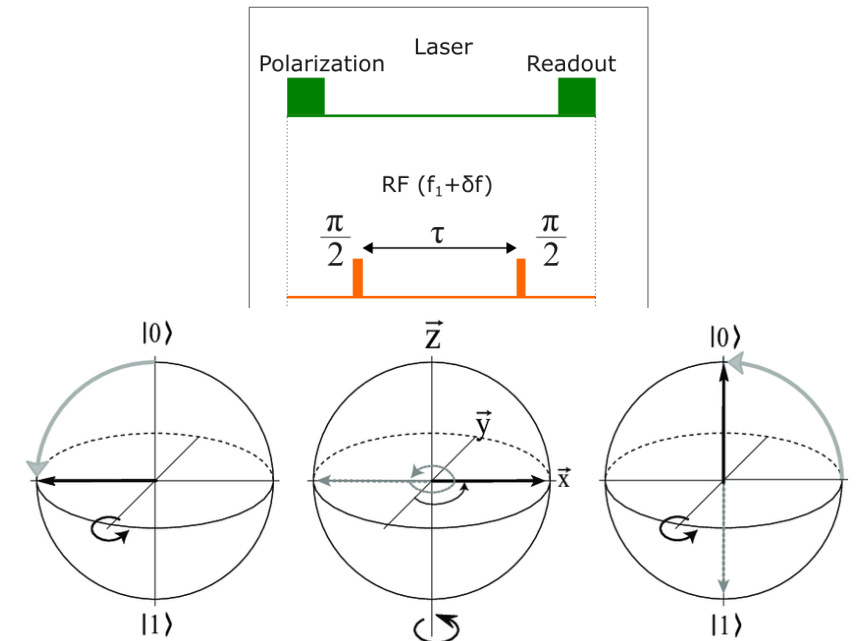
Electron: spin 1 system



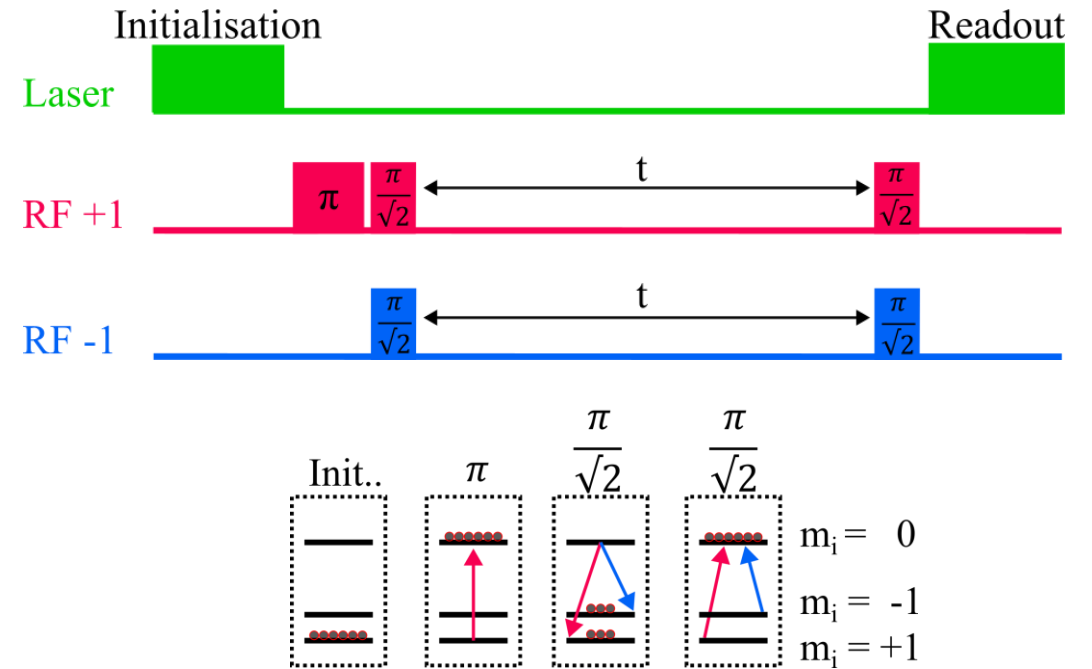
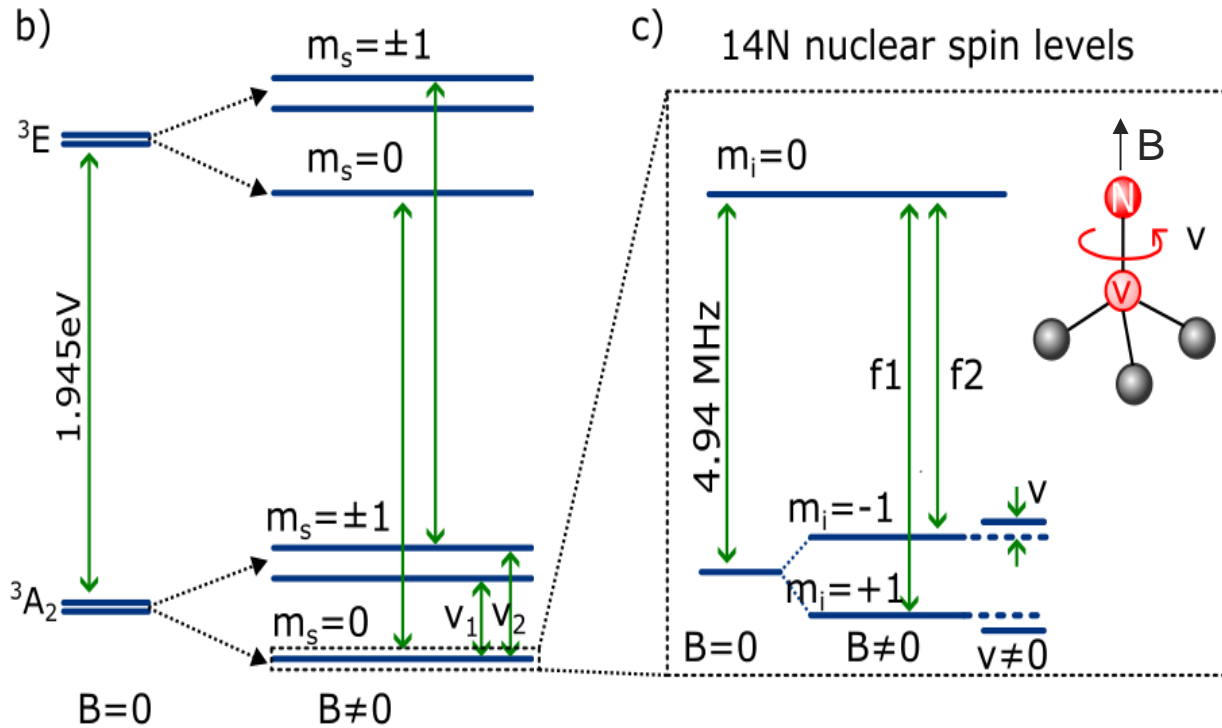
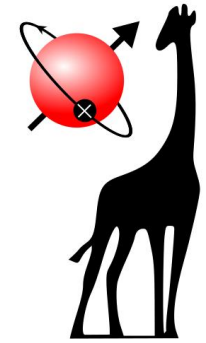
$$\omega_m = \omega_L + \nu$$



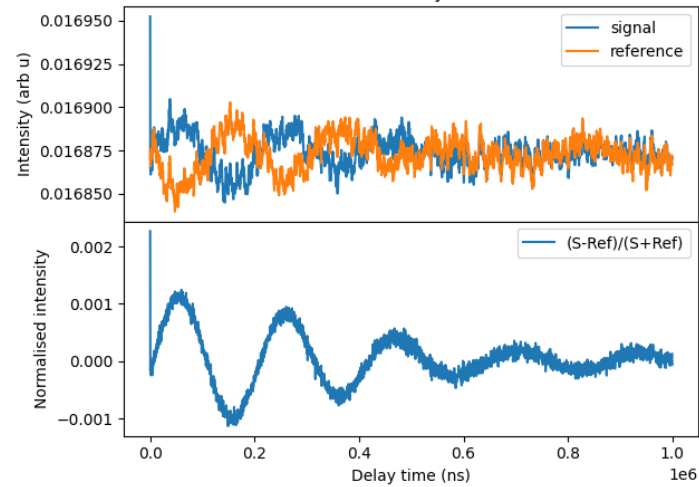
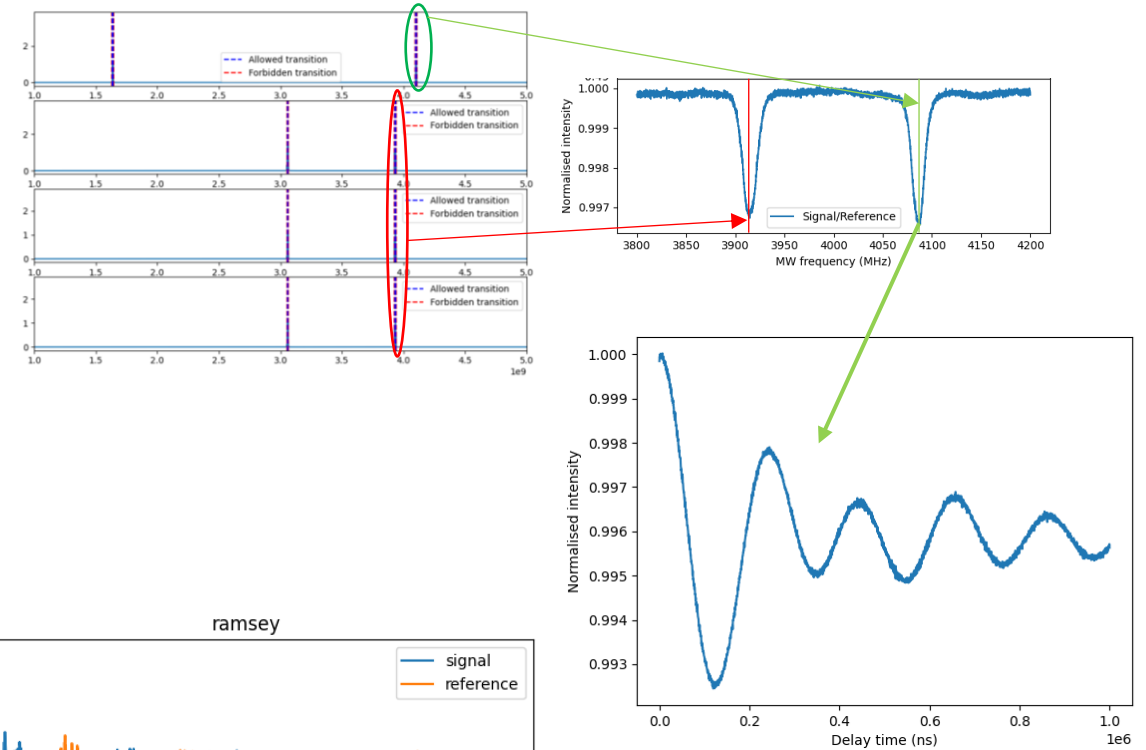
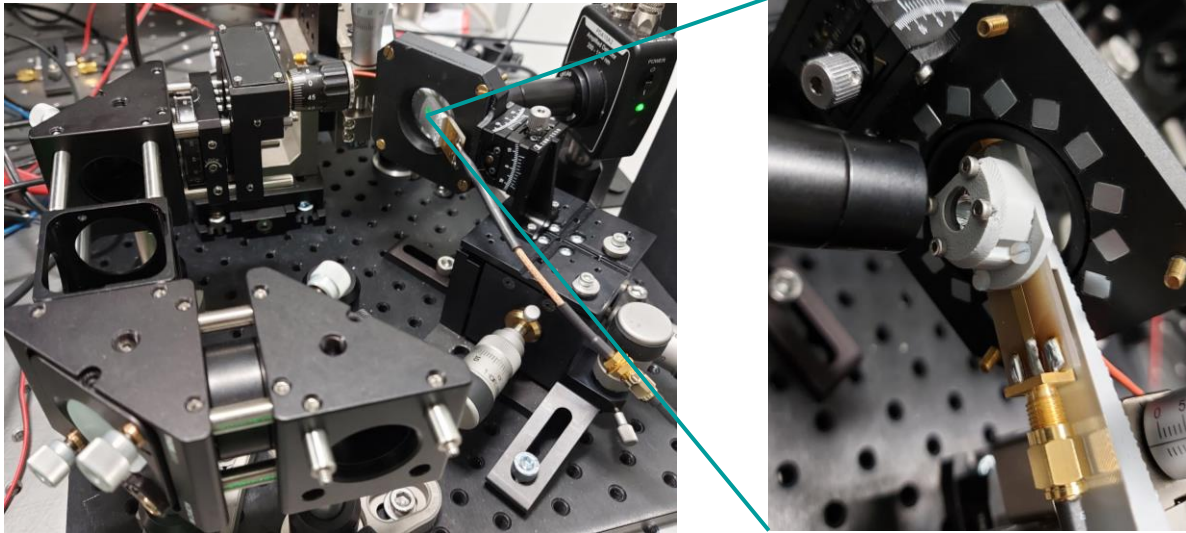
Ramsey pulse sequence



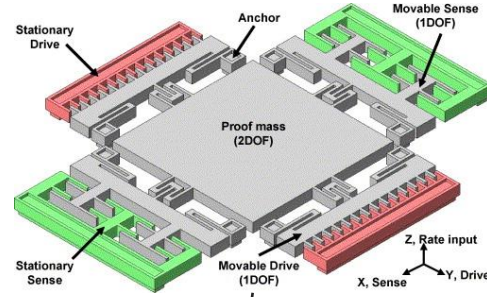
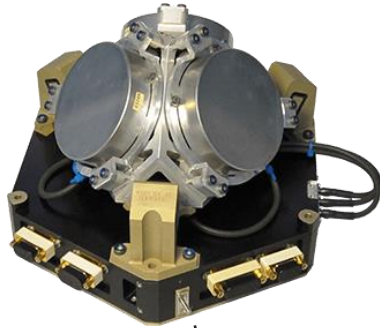
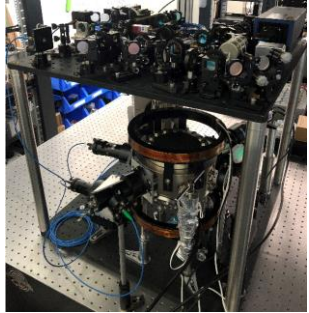
# DOUBLE QUANTUM RAMSEY SCHEME



# EXPERIMENTAL STUDY

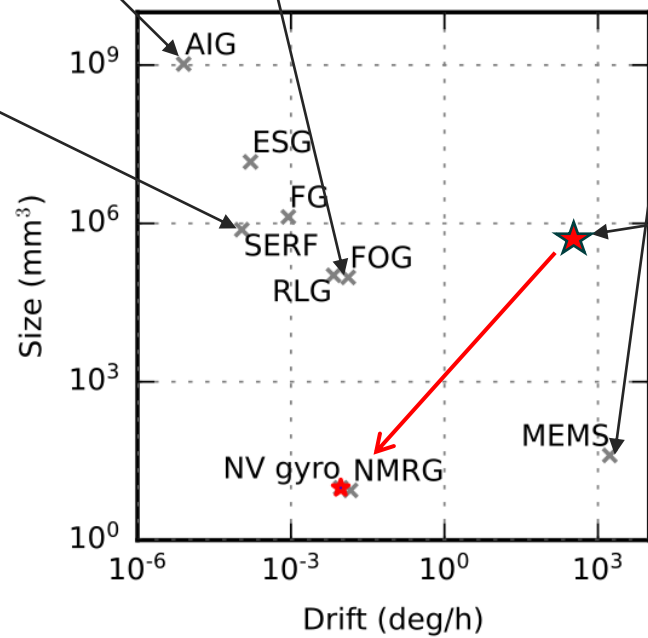
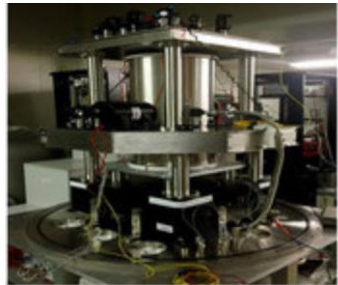
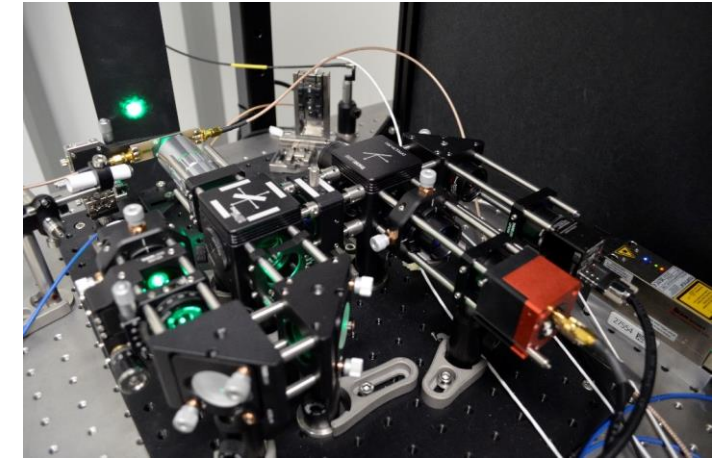


# THE HORIZON



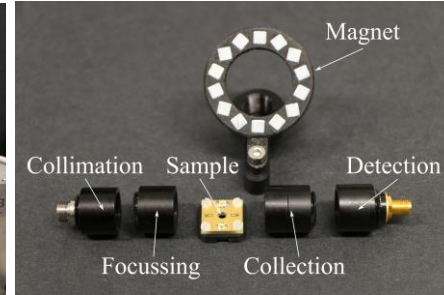
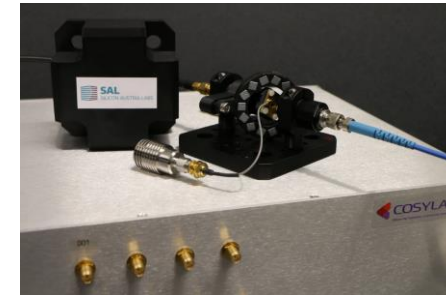
2022

Lab scale



2024

Shoe box size



>2025

Chip scale



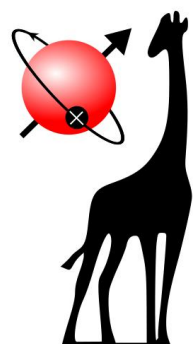
Diamond for Industry REady Quantum Technologies

# Thank You!

## THE CORE GIRAFFE TEAM



[mario.grueneberg@silicon-austria.com](mailto:mario.grueneberg@silicon-austria.com)



# UNFOLD THE FUTURE

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