Quantum technologies
Thales Research & Technology

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Applications of quantum technologies

- **New products resulting from basic research**
  - Improved performances
  - New functionnalities with no classical counter-part

- **Applications**
  - gravity, acceleration, rotation
  - Time & frequency
  - Magnetic and electric fields
  - RF spectrum analysis

- **Requirements**
  - Technical sensitivity, accuracy, etc
  - Product: optimized cost, reliability, manufacturability
Demonstrators based on quantum technologies

### Secure communications

- **Quantum key distribution**
  - TRT / LCFIO
  - Continuous variables
  - Telecom components
  - Field demonstrators

### RF spectrum analyser

- **Spectral Hole burning**
  - TRT / LAC
  - Rare-earth doped crystals
  - Bandwidth: 20 GHz

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**SECOQC**

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Current research on quantum technologies

- **Cold atoms on chip**
  - gravimeter, accelerometer, clock
  - TRT / LCFIO

- **NV centers in diamond**
  - Solid-state sensor at room temperature
    - TRT / LAC
    - Magnetometer
    - RF spectrum analyser