

Bachelor Thesis

Overview of optical and quantum measurement possibilities on satellites

Satellites enable both classical optical measurements (e.g., Earth observation) and novel quantum measurements, which include secure quantum key distribution (QKD) for cybersecurity, quantum communication to build a global Quantum Internet, advanced quantum sensing for high-precision navigation and timing, quantum computing for in-situ data processing, and even tests combining quantum mechanics and gravity over vast distances. These applications leverage technologies like entangled photon sources, quantum memories, efficient detectors, and advanced optical systems to operate in the extreme conditions of space.

Your Tasks

- Literature research on optical and quantum measurements for satellites
- Identification of application areas and key technologies
- Identification of challenges and problems faced, especially for small satellite platforms



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Your Profile

- Interest in space activities
- Willingness to actively engage in research work
- Critical and analytical thinking

Contact

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