

## TG Tests of Fundamental Physics (Spectroscopy) Overview

<b>TG Leader</b>	Andrey Surzhykov
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### TG Activities

- Probing new physics through isotope shift spectroscopy using highly charged ions
- Working on test theories beyond SME
- Clock tests in gravitational fields
- Spectroscopic tests of dark matter and variation of constants
- Tests of fundamental decoherence

### TG Competences/Services

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### Involved QF Members

<b>Members</b>	<b>Institution</b>	<b>Relevant Expertise</b>
Andrey Surzhykov, Leader	PTB	Light-Matter Interfaces and Dynamics
Piet Schmidt	PTB / LUH	Quantum Logic Spectroscopy of Highly Charged Ions; Transportable Al <sup>+</sup> Uhr
Steven King	PTB	Quantum Logic Spectroscopy of Highly Charged Ions
Tanja Mehlstäubler	PTB / LUH	Precision spectroscopy in In <sup>+</sup> and Yb <sup>+</sup> ions; Test of LLI
Elina Fuchs	PTB / LUH	High Energy Physics with Cold Atoms
Silke Ospelkaus	LUH	Exotic Spin Systems with Molecules; Application of Ultracold Molecular Systems for Precision Measurements and Quantum Many-Body Physics
Chih-Han Yeh	PTB	LLI test with Yb ions
Laura Dreissen	PTB	LLI experiments
Henning FÜRST	PTB	LLI experiments
Julian Pick	LUH	Atomic State Squeezing and their application in tests of GR
tbd/Hammerer	LUH	Atomic State Squeezing and their application in tests of GR
Uwe Morgner	LUH	Enhanced Optical Nonlinearities and High-Harmonic Generation
Milutin Kovacev	LUH	Enhanced Optical Nonlinearities and High-Harmonic Generation
Philip Mosel	LUH	Enhanced Optical Nonlinearities and High-Harmonic Generation
Christian Pfeifer	ZARM	Lorentz invariance violations, Standard Model Extensions



Claus Lämmerzahl	ZARM	General Relativity, QED, atomic clocks
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