

Sonderkolloquium

Optical Clocks: From frequency measurements to applications across various disciplines

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Optical clocks are the most precise measurement devices mankind has ever built, the finest of them now reaching fractional uncertainties at the 19th digit. This stunning performance - an improvement by 10 orders of magnitude over the past 30 years - was made possible by landmark progress in the fields of ultracold atoms and optical cavities, and by the invention of the frequency comb. These clocks are currently prepared for applications outside the laboratory, most prominently in the field of geodesy.

I will give a broad introduction to the field, reaching from the early developments to future concepts, and I will elaborate on a number of unexpected applications.