A passion for precision

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Abstract

For more than three decades, the quest for ever higher precision in laser spectroscopy of the simple hydrogen atom has inspired many advances in laser, optical and spectroscopic techniques, culminating in femtosecond laser optical frequency combs as perhaps the most precise measuring tools known to man. Applications range from optical alarm clocks and test of QED and relativity to searches for time variations of fundamental constants. Recent experiments are extending frequency comb techniques into the extreme ultraviolet. Laser frequency combs can also control the electric field of ultrashort light pulses, creating powerful new tools for the emerging field of attosecond science.