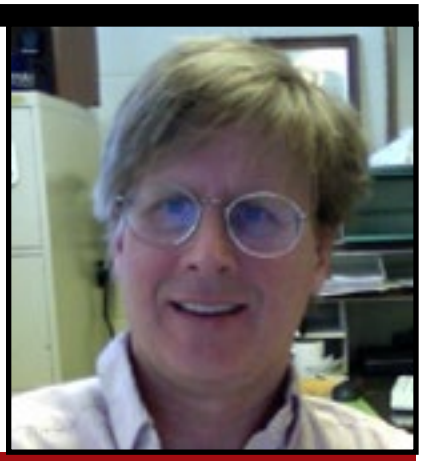
3:30 pm • Friday September 5, 2014 • 2241 Chamberlin Hall • Coffee at 4:30 pm

Chris Oates

NIST-Boulder

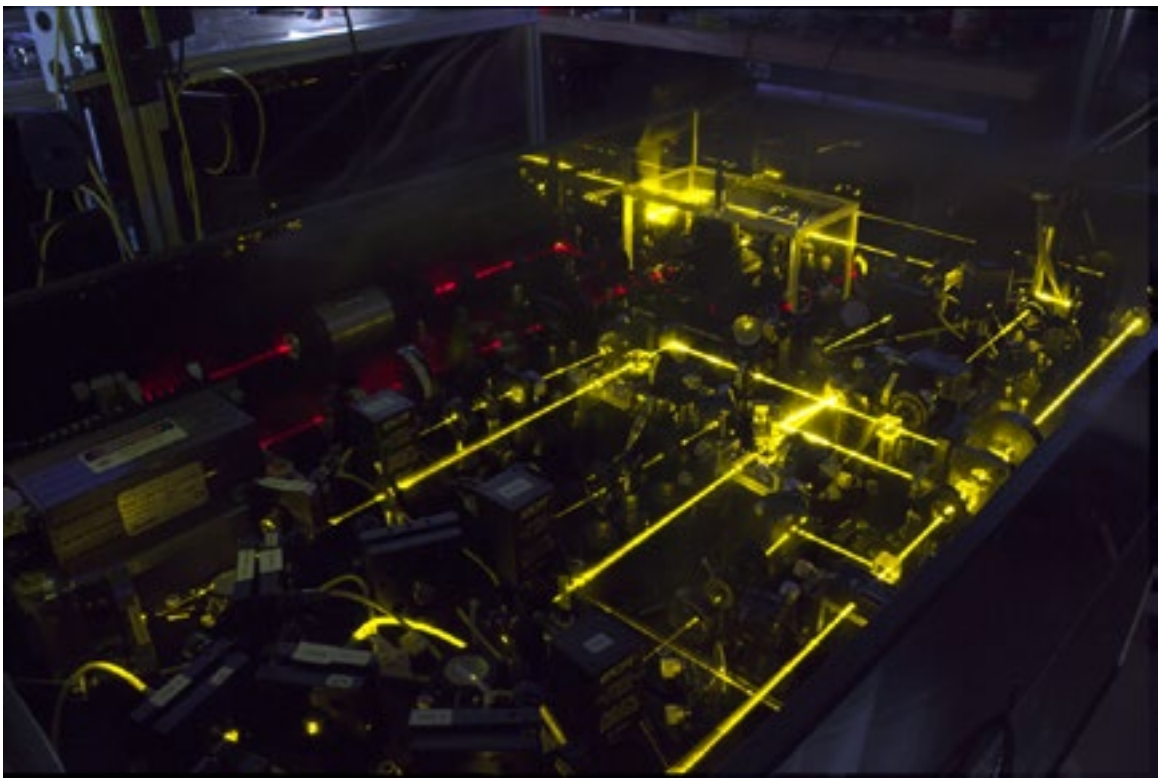


Optical Atomic Clocks
A New Era of Precision Timekeeping

Department of Physics Colloquium

WISCONSIN

The past decade has seen a revolution in atomic clocks that has advanced clock performance by more than two orders of magnitude. These new clocks, based on lasers stabilized to narrow optical transitions in trapped ions or atoms, use femtosecond lasers to link up with microwave or other optical clocks. I will describe our research on clocks based on neutral Yb atoms confined in an optical lattice, and highlight the key physical effects that need to be considered in optical clock design. Finally, I will highlight recent breakthroughs and show how optical clocks are used in tests of fundamental physics as well as precision timekeeping applications.



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