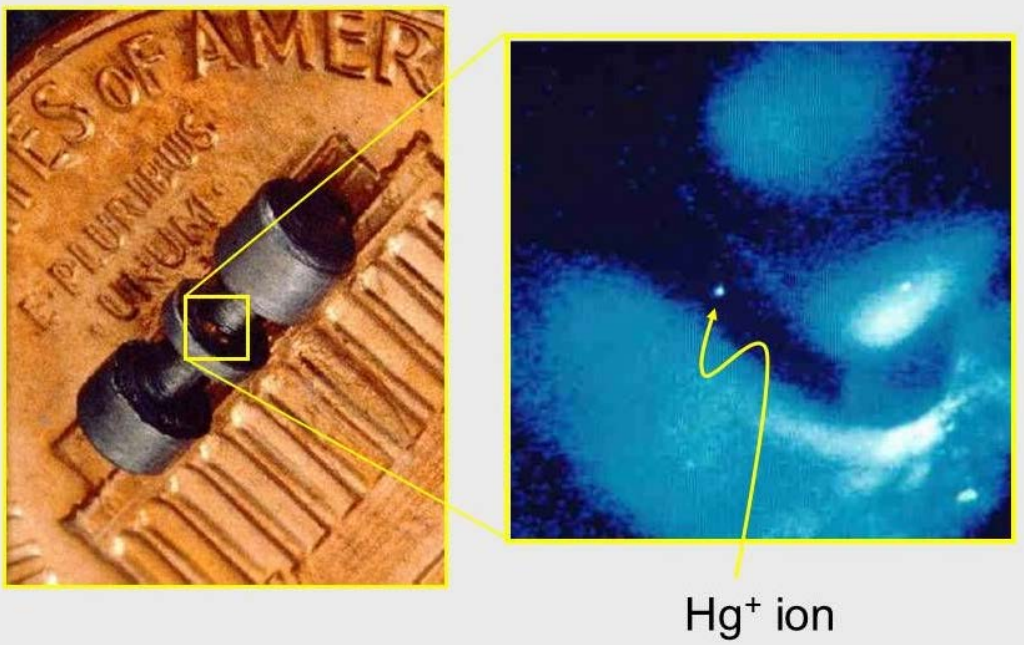
Physikalisches Institut
Fakultät für Mathematik und Physik
Albert-Ludwigs-Universität Freiburg

PHYSIKALISCHES KOLLOQUIUM

AM 8. DEZEMBER 2014 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



SINGLE-ATOM OPTICAL CLOCKS

PROF. DR. DAVID WINELAND

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST), BOULDER, COLORADO

With the availability of spectrally pure lasers and the ability to precisely measure optical frequencies, it appears the era of optical atomic clocks has begun. In one clock project at NIST we have used single trapped atomic ions because uncertainties in systematic effects are smallest, reaching a fractional error of $\Delta f/f_0 = 0.8 \times 10^{-17}$. At this level, many effects, including those due to special and general relativity, must be calibrated and corrected for.