ID de Contribution: **35** Type: **Invited talk**

Group II atoms: atomic clocks, long-range interactions, and precision measurements

lundi 22 février 2016 10:30 (30 minutes)

I will report recent advances in the calculations of atomic properties of group II atoms and similar systems of interest to the development of optical atomic clocks, production of ultracold molecules, quantum information, and precision measurements. The calculations include magic wavelengths and blackbody radiation shifts for Mg, Cd, Zn, Sr, Yb and Hg, magic-zero wavelengths in Sr, C₆ and C₈ van der Waals coefficients for Sr-Sr, Yb-Yb, and Yb-alkali dimers, and other transition properties and ac polarizabilities. We demonstrate that measurements of a sequence of Sr magic-zero wavelengths can serve as a global benchmark of the spectroscopic accuracy that is required for further development of high-precision predictive methods. These magic-zero wavelengths are also needed for states elective atom manipulation for implementation of quantum logic operations. Finally, I will report a theoretical prediction of ionization potential of No, Z=102, which is a heavier analog of Yb.

Auteur principal: SAFRONOVA, Marianna (University of Delaware)

Orateur: SAFRONOVA, Marianna (University of Delaware)

Classification de Session: Session 1