



Contribution ID: 208

Type: **Invited Speaker**

Entanglement and dynamic decoupling in multi-ion clock

Tuesday, 26 September 2023 09:30 (30 minutes)

Trapped ions are ideal systems for optical atomic clocks and precision tests of fundamental physics. However, the quantum projection noise of the single ion imposes a limit on its stability. Multi-ion optical clock has an obvious potential to improve clock stability. However, their operation has so far been impeded due to the challenges of controlling the various inhomogeneous shifts that are typical to ion traps. Recently dynamic decoupling and quantum state engineering were proposed to tackle some of these challenges. In this talk, I will present the status of our Sr⁺ ion clock at WIS. I will then report our recent progress in implementing a clock of two-isotope in an entangled state that is magnetic insensitive. In addition, a dynamic decoupling scheme which suppresses the quadruple and Zeeman shift in a multi-ion clock.

Primary author: AKERMAN, Nitzan (Weizmann Institute of Science)

Presenter: AKERMAN, Nitzan (Weizmann Institute of Science)

Session Classification: Tuesday