Contribution ID: **45** Type: **Invited Poster**

Progress on the optically detected magnetic-state-selected cesium beam clock

We present the recent progress on the optically detected magnetic-state-selected cesium beam clock (OMCC). The stability of the compact prototype reaches 4.0E-13@100s, 4.5E-14@10000s and 2.2E-14@1d. We use beam optics to increase SNR to obtain better short-term stability. We propose detuned light detection method and pulsed light detection method to suppress the light shift. To further optimize the stability, we develop a new type of OMCC, which has a narrower linewidth and higher SNR. The stability of this new type reaches 2.94E-12 tauˆ-1/2 on the laboratory platform.

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Track Classification: SI definition, Clocks and Time Scales