

PROGRESS REPORT ON A PORTABLE TI:SAPPHIRE COMB LASER WITH FREQUENCIES REFERRING TO CESIUM ATOM TWO-PHOTON TRANSITIONS

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A portable Ti:sapphire comb laser would contribute significantly to generalize comb-laser applications, such as the astro-comb missions or other interdisciplinary collaborations. To develop a portable comb laser, three barriers lie ahead: one is to miniaturize and robotize the frequency reference system of the comb laser; the second is to ensure the long-term frequency accuracy without satellite connection, and the third is to miniaturize the pumping laser system. We developed two hand-size cesium-stabilized diode lasers at 822 nm and 884 nm to serve as frequency references for a comb laser and we carried out a comb-laser-based CPT experiment with one single cesium cell that might offer a locking procedure for long-term comb laser accuracy. We will also report our plans and progress on a fiber laser pumped Ti:sapphire comb laser.