

## **Observation of continuous and discrete time crystals**

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Discrete (DTCs) and continuous (CTCs) time crystals are dynamical many-body states, showing robust self-sustained oscillations, emerging via spontaneous breaking of discrete or continuous time translation symmetry, respectively. DTCs are periodically driven systems that oscillate with a subharmonic of the drive, while CTCs are driven continuously and oscillate with a system inherent frequency. I will show experimental realizations of continuous and discrete time crystals in Bose-Einstein condensates of rubidium atoms strongly coupled to a high finesse optical cavity. I will discuss how these two dynamical many-body phases are connected via a subharmonic injection locking process.