## Stabilising Time Crystals through Non-Markovian Dynamics

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We study stabilizing discrete and continuous time crystals through non-Markovian dynamics. While time crystals in earlier works have primarily been explored in the Markovian regime, we demonstrate that non-Markovian dynamics can significantly enhance their stability in the presence of strong dissipation, over a wide range of parameter values. We present dynamical phase diagrams showing significant differences between the Markovian and non-Markovian regimes. In addition, the effects of non-Markovianity are also apparent in the associated quantum Fisher information. Our study highlights the crucial role of information backflow for making robust time crystals, and suggests the potential use of time crystals as probes for non-Markovianity in open quantum systems at long times.