

# The dynamical origin of the Milky Way's Local arm, and the Sun's trapped orbit

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The Local arm of the Milky Way, a short spiral feature near the Sun whose existence is known for decades, was recently observed in detail with different tracers. Many efforts have been dedicated to elaborate plausible hypotheses concerning the origin of the main spiral arms of the Galaxy; however, up to now, no specific mechanism for the origin of the Local arm was proposed.

Here we explain, for the first time, the Local arm as an outcome of the spiral corotation resonance, which traps arm tracers and the Sun inside it. We show that the majority of maser sources belonging to the Local arm, together with the Sun, evolve inside the corotation resonance, never crossing the main spiral arms but instead oscillating in the region between them. This peculiar behavior of the Sun could have numerous consequences to our understanding of the local kinematics of stars, the Galactic Habitable Zone, and the Solar System evolution.