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**The dynamics of quasibound state formation in the driven Gaussian potential** KYUNGSUN NA, University of Texas at Austin, DAUNGRUTHAI JARUKANONT, LINDA REICHL, University of Texas at Austin — The quasibound states of a particle in an inverted-Gaussian potential interacting with an intense laser field are studied using complex coordinate scaling and Floquet theory. The dynamics of the driven system is different depending on whether the driving field frequency is less than or greater than the ionization frequency. As the laser field strength is increased, a new quasibound state emerges as the result of a pitchfork bifurcation in the classical phase space. Changes in the time-averaged "dressed potential" appear related to this bifurcation and provide additional confirmation of the role of the bifurcation on the emergence of a new quasibound state. The Husimi plots of the quasibound state residues reveal strong support on the periodic orbits of the bifurcation at frequencies above the ionization frequency.

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