

Abstract Submitted
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Autler-Townes splitting and light induced structures in the absorption profile of an autoionizing resonance¹ COLEMAN CARIKER, Dept of Physics, University of Central Florida, EVA LINDROTH, Stockholm University, Stockholm, SE, EU, LUCA ARGENTI, Dept of Physics and CREOL, University of Central Florida — The effects of Fano interference and Autler-Townes splitting are well documented in absorption spectroscopy experiments. Recently, ultrafast pump-probe spectroscopy has demonstrated further control of these features by manipulation of the parameters of the pulse sequence. We report *ab initio* calculations, in quantitative agreement with experimental measurements, demonstrating a combination of the two effects. By dressing a Fano resonance with a moderately strong probe pulse, light induced structures appear in the absorption profile, which are observed to transition into an Autler-Townes doublet feature as the probe frequency crosses the position of the dark resonance. We supplement these results with essential state model calculations that give insight into the role the various bright and dark resonances play in the driven evolution of the system and the resultant spectral features.

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