HIGH-LYING RYDBERG STATES OF HCO ABOVE AND BELOW THE IONIZATION THRESHOLD LIMIT.

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Using a Continuum Mirage 500 optical parametric oscillator (OPO) we were able to obtain ionization-detected high resolution spectra of high Rydberg series of HCO in transitions from the optically selected N'=2 level of the (010) Σ^+ component of the $3p\pi\ ^2\Pi$ Rydberg state. We observed resonances above the adiabatic ionization limit which are detected following autoionization as well as discrete states below threshold which require third infrared photon absorption for ionization. The ease of use and resolution limits of the OPO will be discussed.