

Abstract Submitted
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Photodetachment and formation mechanisms of cosmic anions¹

NICOLAS DOUGUET, University of California at Davis, VIATCHESLAV KOKOULINE, University of Central Florida, MAURICE RAOULT, Laboratoire Aime Cotton, ANN OREL, University of California at Davis — The recent discovery of molecular anions outside the solar system has triggered a growing interest in the search of their formation and destruction mechanisms. In this talk, we present theoretical calculations of the photodetachment cross sections for the CN^- , C_2H^- , C_3N^- and C_4H^- molecular ions using the complex variational Kohn method. The results are compared with recent experimental measurements and we discuss threshold laws and the role of excited electronic open channels. We then focus on potential formation of these ions via radiative attachment, either by spontaneous emission of the continuum electron, or through initial electron capture into excited anion vibrational states followed by radiative relaxation. Finally, we treat the potential role of dipole states in the radiative attachment process.

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