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Simplified model to treat the electron attachment of complex molecules[1] CHI HONG YUEN, NICOLAS DOUGUET, University of Central Florida, SAMANTHA FONSECA DOS SANTOS, Rollins College, ANN OREL, University of California, Davis, VIATCHESLAV KOKOOULINE, University of Central Florida — We present a theoretical approach to evaluate cross sections for dissociative electron attachment to polyatomic molecules. Starting from the Bardsley-O'Malley theory developed for diatomic targets, we extend the formalism of resonant scattering to polyatomic molecules. By inspecting the variation of resonance energies with respect to normal coordinates, a generalized dissociation coordinate is introduced for polyatomic molecules. Using the local complex potential model, the present *ab inito* model gives a reasonable estimate for dissociative attachment cross sections with modest computational efforts. The model is applied to the H_2CN molecule, which is considered as a precursor in the formation of the CN^- anion observed in the IRC +10216 carbon star. The computed rate coefficient suggests that the dissociative electron attachment of H_2CN may not be an efficient reaction to form CN^- in the circumstellar envelope of IRC +10216.

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