

Abstract Submitted
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Exploration of the Dissociative Recombination following DNA ionization to DNA⁺ due to ionizing radiation¹ RICHARD A. STROM, ANDREW T. ZIMMERLY, VOLA M. ANDRIANARIJAONA, Department of Physics, Pacific Union College, Angwin, California 94508, USA — It is known that ionizing radiation generates low-energy secondary electrons, which may interact with the surrounding area, including biomolecules, such as triggering DNA single strand and double strand breaks as demonstrated by Sanche and coworkers (*Radiat. Res.* **157** 227(2002)). The bio-effects of low-energy electrons are currently a topic of high interest. Most of the studies are dedicated to dissociative electron attachments; however, the area is still mostly unexplored and still not well understood. We are computationally investigating the effect of ionizing radiation on DNA, such as its ionization to DNA⁺. More specifically, we are exploring the possibility of the dissociative recombination of the temporary DNA⁺ with one of the low-energy secondary electrons, produced by the ionizing radiation, to be another process of DNA strand breaks. Our preliminary results, which are performed with the binaries of ORCA, will be presented.

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Vola M Andrianarijaona
Department of Physics, Pacific Union College,
Angwin, California 94508, USA

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