

Abstract Submitted  
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**Electron Scattering by Deoxyribose and Related Molecules<sup>1</sup>**

CARL WINSTEAD, VINCENT MCKOY, California Institute of Technology — Interactions between slow electrons and DNA are now known to be a cause of genetic damage, but the mechanisms that lead to DNA strand breaks remain a subject of investigation. Studies of electron collisions with DNA subunits in the gas phase may help to elucidate those mechanisms. In the present work, we apply the Schwinger multichannel method, an *ab initio* computational procedure, to compute elastic electron scattering cross sections for 2-deoxyribose, the sugar found in the DNA backbone, and for some related molecules. For deoxyribose, the calculations indicate the presence of shape resonances in two distinct energy ranges. When a phosphate group is added, these ranges merge into a single broad maximum.

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