Dear Editor-in-Chief, Honolulu, September 12, 2019

Enclosed please find our manuscript entitled “**Probing the Reaction Mechanisms Involved in the Decomposition of Solid 1,3,5-Trinitro-1,3,5-Triazinane (RDX) by Energetic Electrons**” to be considered for publication in the Journal of Physical Chemistry A.

Nitramine-based (N-NO2) energetic materials such as 1,3,5-trinitro-1,3,5-triazinane (RDX) have been widely exploited as explosives and propellants. The decomposition mechanisms of RDX have been investigated over the past several decades, but a complete picture of these pathways have not yet emerged as evident from the discrepancies in proposed reaction mechanisms and the critical lack of products and intermediates observed experimentally. Here, we utilized a surface science machine to investigate the decomposition of solid-phase RDX via energetic electrons at a temperature of 5 K. The decomposition products were monitored via infrared, UV-VIS, and reflectron time-of-flight mass spectrometer coupled with a soft photo­ionization (ReTOF-MS-PI). A total of 39 products (cyclic and acyclic) were detected, of which 21 were detected for the first time. New decomposition pathways were proposed to explain the existence of these molecules. This study leads to a better understanding of the complex decomposition pathway of RDX and the combustion processes of nitramine-based explosives.

We would like to state that this work has not been submitted for publication elsewhere including the internet. We would also like to recommend the following reviewers:

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Due to a direct competition and conflict of interest, we request that Dr. Alec Wodtke (Max Planck Institute Gottingen) is excluded as a reviewer.

Thank you very much for your consideration.

Sincerely yours,

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