

Abstract Submitted
for the GEC18 Meeting of
The American Physical Society

Laser driven production of antimatter molecules MARK ZAMMIT, Los Alamos National Laboratory, MICHAEL CHARLTON, Swansea University, JAMES COLGAN, Los Alamos National Laboratory, SVANTE JONSELL, Stockholm University, JEREMY SAVAGE, DMITRY FURSA, IGOR BRAY, Curtin University, CHRISTOPHER FONTES, DAVID KILCREASE, PETER HAKEL, JEFFERY LEIDING, EDDY TIMMERMANS, Los Alamos National Laboratory — Recent years have seen marked progress in the production of, and experimentation with, atomic antimatter in the form of antihydrogen, $\bar{\text{H}}$. Now we investigate the feasibility of producing the anti-molecular hydrogen anion, $\bar{\text{H}}_2^-$ (consisting of two anti-protons and a positron), in the laboratory. Utilizing reaction rates calculated here involving the interaction of antiprotons trapped with antihydrogen atoms, key processes are identified that could lead to anion production. These reactions are discussed in the context of present day and near future experimental capabilities.

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Date submitted: 21 Jun 2018

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