

Abstract Submitted  
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**High Energy Measurement of the Associative Detachment Reaction  $\text{H}^- + \text{H} \rightarrow \text{H}_2 + \text{e}^-$  Using a Merged-Beams Apparatus**<sup>1</sup> KENNETH A. MILLER, HJALMAR BRUHNS<sup>2</sup>, HOLGER KRECKEL<sup>3</sup>, DANIEL WOLF SAVIN, Columbia University, MARTIN CIZEK, Charles University Prague, Czech Republic, XAVIER URBAIN, Universite Catholique de Louvain, Belgium — Using a merged beams apparatus we have measured the associative detachment reaction of  $\text{H}^- + \text{H} \rightarrow \text{H}_2 + \text{e}^-$  for relative collision energies  $E_r \leq 4.8$  eV. These data extend above the 1 eV limit of our previous results. We have also investigated and ruled out several possible sources of systematic error in our previous work. Merging both data sets these results are in excellent agreement with recent theoretical calculations and confirm the prediction that this reaction essentially turns off for  $E_r \geq 2.25$  eV. Similar behavior has been predicted for protonium formation from collisions of antiprotons with hydrogen atoms.

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