

Abstract Submitted
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O⁻ channels of Dissociative Electron Attachment to water and heavy water molecules¹ HIDEHITO ADANIYA, BENEDIKT RUDEK, TIMUR OSIPOV, SUN LEE, THORSTEN WEBER, MARCUS HERTLEIN, MARKUS SCHOEFFLER, MIKE PRIOR, ALI BELKACEM, Lawrence Berkeley National Lab — A COLTRIM technique is modified to measure the kinetic energy and angular distribution of O⁻ ions arising from dissociative electron attachment to water and heavy water molecules. A low energy pulsed electron, an effusive water target, a pulsed extraction plate are used in combination with the COLTRIMS spectrometer. The spectrometer carries an electrostatic lens system to compensate the effusiveness of the target. This technique is applied to study the O⁻ channels in the three Feshbach resonances of water and heavy water anion. The measured kinetic energy release will give the energy partitioning among the fragments, and the means to identify the two-body and three-body breakup channels. The angular distribution of the O⁻ ions with respect to the electron beam is found to reflect well the breakup dynamics of the H₂O⁻ at the dissociation. The experimental results are compared with the theoretical predictions.

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