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Portable three-dimensional imaging for an explicit identification of the internal state of diatomic molecular ions[1] V.M. ANDRIANARIJAONA, Department of Physics, Pacific Union College, Angwin, CA 94508, USA, C. ALAIME, Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain, Chemin du Cyclotron 2, 1348 Louvain-la-Neuve, Belgium, B. FABRE, CELIA, Université Bordeaux I-CNRS-CEA, 351 Cours de la Libération, 33405 Talence, France, A.K. VASSANTACHART, Department of Physics, Pacific Union College, Angwin, CA 94508, USA, J.J. JURETA, X. URBAIN, Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain, Chemin du Cyclotron 2, 1348 Louvain-la-Neuve, Belgium — A transportable experimental set-up was developed at the Université catholique de Louvain in Louvain-la-Neuve, Belgium to measure the internal energies of small diatomic molecular ions such as H_2^+. The technique, which scheme was first developed by D. P. de Bruijn and J. Los (Rev. Sci. Intstrum. 53, 1020, 1982) and included a resonant dissociative charge exchange with alkali atoms, consists in measuring the positions of the fragments and their flight time difference with two position sensitive detectors. The measured kinetic energy release is directly related to the original level of vibrational excitation of H_2^+. Details and applications will be presented.

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