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**Four-Particle Dalitz Plots to Visualize Atomic Break-Up Processes**[1] MICHAEL SCHULZ, DANIEL FISCHER, THOMAS FERGER, ROBERT MOSHAMMER, JOACHIM ULLRICH, University of Missouri-Rolla — We introduce a new method to analyze four-body fragmentation processes, which is basically an extension of Dalitz plots commonly used in particle physics to analyze three-body fragmentation processes. It enables for the first time to present multiple differential cross sections as a function of all four fragments without loss of any part of the total cross section in the integral spectrum. As a first example, the technique is applied to ionization processes in atomic collisions.

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