Abstract Submitted
for the GEC08 Meeting of
The American Physical Society

Electron–electron correlations assessed analyzing doubly differential angular distributions in double ionization of helium by proton impact MARCELO CIAPPINA, Max-Planck-Institut für Physik komplexer Systeme, MICHAEL SCHULZ, Physics Department and LAMOR, University of Missouri-Rolla, TOM KIRCHNER, Institut für Theoretische Physik, TU Clausthal, DANIEL FISCHER, ROBERT MOSHAMMER, JOACHIM ULLRICH, Max-Planck-Institut für Kernphysik — Double ionization (DI) of helium by ion impact presents a singular scenario to study electron-electron correlation in atomic physics. Recent experimental data have revealed signatures of this feature in the doubly differential cross sections in terms of the angles of the two emitted electrons [1]. We present an exhaustive theoretical and experimental study of these cross sections, by disentangling the contribution of the different mechanisms that contribute to DI [2]. To this end, first order and higher order distorted wave theories are implemented jointly with the Monte Carlo Event Generator method (MCEG) [3]. This latter tool allows us to incorporate efficiently all the experimental conditions in the theoretical models. [1] M. Schulz et al, J. Phys. B **38**, 1363-1370 (2005). [2] M. F. Ciappina et al, PRA (in preparation) (2008). [3] M. Dürr et al, Phys. Rev. A **75**, 062708 (2007).

Marcelo Ciappina
Max-Planck-Institut für Physik komplexer Systeme,
Nöthnitzer Str. 38, D-01187 Dresden

Date submitted: 03 Jun 2008 Electronic form version 1.4