

Abstract for an Invited Paper
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Strong-field physics at relativistic intensity

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The dynamics of multiply charged ions is discussed in the presence of extremely intense laser pulses. Various schemes are put forward how such ions could be employed for medical applications [1] and to characterize extremely intense laser pulses. Furthermore various laser-based scenarios are presented regarding vacuum nonlinearities [2] as well as muon [3] and electron pair creation [4].

[1] Y. I. Salamin, Z. Harman, C H Keitel, Phys. Rev. Lett. 100, 155004 (2008)

[2] A. Di Piazza, K. Z. Hatsagortsyan, C. H. Keitel, Phys. Rev. Lett. 100, 010403 (2008)

[3] C. Müller, C. Deneke, C. H. Keitel, Phys. Rev. Lett. 101, 060402 (2008)

[4] E. Lötstedt, U. D. Jentschura, C. H. Keitel, Phys. Rev. Lett. 101, 203001 (2008).