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Work-fluctuation relations for a Brownian particle in an electromagnetic field J.I. JIMÉNEZ-AQUINO, R.M. VELASCO, F.J. URIBE, Universidad Autonoma Metropolitana — In statistical physics of nano-sized systems out of equilibrium, a variety of theoretical approaches and experimental demonstrations to prove some work-fluctuation have been reported recently in the literature[1,5]. In this work , we discuss how some of those theoretical approaches can be extended to give a proof of some work-fluctuation relations for an electrically charged harmonic oscillator in the presence of an uniform electromagnetic field. The perspectives of our proposal will also be discussed. [1] R. van Zon and E. G. D. Cohen, Phys. Rev. E **67**, 046102 (2003). [2] C. Bustamante, J. Liphardt, F. Ritort, Phys. Today **58** (7), 43 (2005). [3] D. J. Evans, D. J. Searles, Adv. Phys. **51**, 1529 (2002). [4] G. M. Wang *et al.*, Phys. Rev. Lett. **89**, 050601 (2002). [5] A. M. Jayannavar, M. Sahoo, Phys, Rev. E **75**, 032102 (2007).

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