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Modeling of plasma-assisted fabrication of polymer-nanotube photovoltaic solar cells IGOR LEVCHENKO, KOSTYA (KEN) OSTRIKOV, AMANDA RIDER, EUGENE TAM, Plasma Nanoscience, The University of Sydney — Given the increasing interest in renewable energy, photovoltaic devices are of great significance. Intensive research efforts are centred on finding a cost-effective, powerful solar cell. One possible solution is polymer/nanotube (CNT)-based solar cells. These devices possess promising characteristics, yet their method of production is intricate and unreliable. Traditionally, CNTs are produced by arc discharges, this is followed by a number of complex manual manipulations to create a dense, perfectly aligned CNT array in a polymer matrix. Here, we present a numerical simulation of polymer/nanotube photovoltaic cell production. Production of a composite nanotube-based solar cell by a single continuous process involving fabrication of ordered arrays of self-assembled single-walled carbon nanotubes, their treatment, activation, functionalization, in addition to construction of the polymer matrix, all via plasma deposition is an excellent example of the versatility of plasmas as nanofabrication tools [1]. [1] K. Ostrikov, Rev. Mod. Phys. 77, 489 (2005)

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