Abstract Submitted
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Atmospheric Pressure rf Microplasma Jet for Nanoparticle Generation[1] JOANNE MCKENNA, CHARLES MAHONY, PAUL MAGUIRE, DAVIDE MARIOTTI, NIBEC, University of Ulster, NIBEC, UNIVERSITY OF ULSTER TEAM — Fabrication of nanoparticles (NPs) using atmospheric jets has potential advantages in purity and crystallinity for applications in, for example, biodiagnostics and photovoltaics. Plasma parameters are known to influence NP characteristics (1, 2). We generated silicon based nanoparticles using silicon compound loaded argon gas and compared size and structural properties (TEM/SEM) with plasma parameters. An rf microplasma jet working at atmospheric pressure was generated in a quartz capillary. Electrical and optical measurements were made for a range of plasma variables, including geometry, flow rates and rf powers. Optical emission spectroscopy was performed to derive effective electron temperature using a collisional-radiative model and to identify reactive species generated by the plasma. Voltage/current and phase characteristics were determined using a VI probe. (1) D Mariotti and K Ostrikov**,** J. Phys. D **42** (2009) 092002. (2) I Levchenko, K Ostrikov, D Mariotti, Carbon **47** (2008) 313.

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