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**The effect of plasmas on the equilibrium shapes of semi-conducting nanocrystals** EUGENE TAM, The University of Sydney, KOSTYA OSTRIKOV, CSIRO, PLASMA NANOSCIENCE TEAM — Consumer needs drives the electronics market and as consumers require faster computers, chips are required to be miniaturized. There is a physical limit in MOSFETs can be scaled down and alternatives must be presented. Semi-conducting Nanowires (NWs) are a potential candidate in the production of logic gates. The production of NWs is an active research area and a recurring theme that occurs in this area is the fact that the growth conditions affect the morphology of the semi-conducting crystal. There are some papers in which the equilibrium shapes of semi-conducting nanocrystals under various growth conditions is discussed however, few mention the effects of charged surfaces or the presence of a charged fluid affecting the final outcome, despite the fact that plasmas are sometimes present to aid the fabrication of NWs. Here we present the results of our simulations which determine the equilibrium shape of ZnO nanocrystals in the presence of plasmas by considering the surface energy, surface stress and precursor distribution along the surface of the structure and attempt to determine what are the optimum conditions in which NWs can form.

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