

Abstract Submitted  
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**Growth Characteristics of Dielectrophoretically Fabricated Single Crystal Wires**<sup>1</sup> ISHAN TALUKDAR, Department of Physics, Oklahoma State University, Stillwater, Oklahoma, 74078, BIROL OZTURK, Department of Physics, Oklahoma State University, Stillwater, Oklahoma, 74078, BRET FLANDERS, Department of Physics, Oklahoma State University, Stillwater, Oklahoma, 74078 — We investigate the mechanism underlying the dielectrophoretically guided growth of single-crystal metallic wires in aqueous solutions of metal-salts. The weak dependence of the mass deposition rate on the growth velocity suggests that the growth mechanism is consistent with microscopic solvability theory. We have also observed interesting dependencies of the growth velocities and the radii of these wires on the frequency of the dielectrophoretic voltage, and will report on our progress towards understanding these phenomena. The dependence of the wire's radius on the frequency is of potential technological interest in that it provides a sensitive means of controlling the submicron wire diameter.

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