

Abstract Submitted
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Micro-capillary aerosol focusing device: theoretical modeling, experimental verification, and device fabrication.¹ JUSTIN HOEY, North Dakota State University, ISKANDER AKHATOV, ORVEN SWENSON, DOUG SCHULZ — A theoretical model for the focusing of aerosol particles in a linearly-varying micro-capillary with a diameter on the order of 100 microns is presented. This theoretical model is experimentally verified by visualizing an aerosol beam of silver-ink aerosol particles of approximately 1 micron in diameter emitted from a micro-capillary. Additional validation is presented in the deposited lines where linewidth is a function of aerosol beamwidth. From the theoretical model a new design for the focusing of aerosol particles is developed, physically produced, and experimentally validated. The new device will be implemented in the areas of high frequency RFID manufacturing, and the semiconductor industry.

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