

Abstract Submitted
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Self and Directed Assembly of Thin Metallic Films exposed to Pulsed Laser Irradiation YUEYING WU, U. Tennessee, JASON FOWLKES, ORNL, PHILIP RACK, U. Tennessee, LOU KONDIC, NJIT, JAVIER DIEZ, UNCPBA — The synthesis and assembly of functional metallic nanomaterials is critical for realizing many important applications of nanoscience and nanotechnology. In this study, we investigate dewetting of metal films via pulsed nanosecond laser melting. We study film instabilities that result from the interplay of capillary forces and liquid-solid interaction, which can lead to thin film break-up and subsequent nanoparticle formation. We have also explored the dewetting and nanopattern formation of other liquid metal geometries, such as rings and lines. We will discuss how nano-lithographically defined features can be used to direct the assembly of nanoparticles with desired properties, concentrating in particular on the role of stochastic fluctuations.

Lou Kondic
NJIT

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