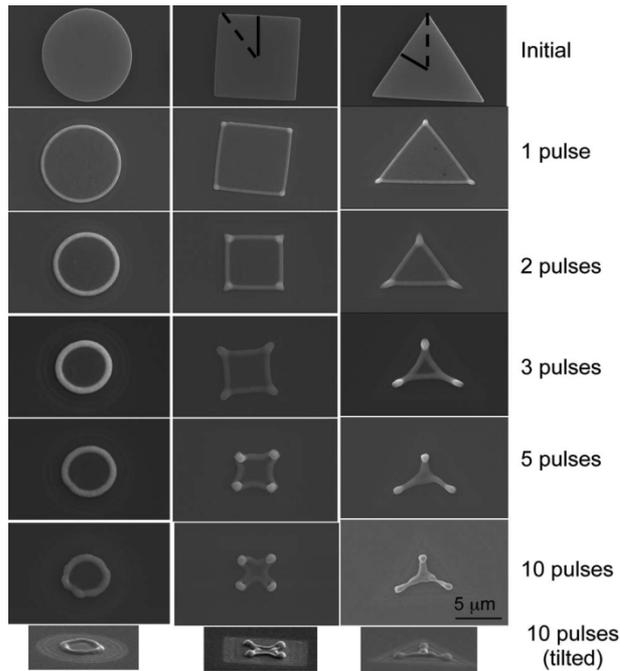


# Pulsed laser dewetting of patterned thin metal films: A means of directed assembly

Attacking one of the challenges of nanoscience and technology: understanding and controlling bottom up directed assembly of materials.



Scanning electron micrographs of pulsed laser treated thin nickel patterns. The top images are the initial thin film circle, square and triangle. (Each pulse with the laser melts some of the nickel, which quickly re-solidifies, in a slightly different pattern.)

- Pulsed laser treatment of nickel produces a short (ns) liquid lifetime which provides a unique way to monitor the time dependence of the dewetting process and the subsequent pattern formation.
- The assembly process via dewetting and pattern formation has been studied in detail for continuous materials.
- This work revealed that edges of patterned (non-continuous) thin films can give rise to programmable instabilities which can be useful for the directed assembly of materials.