**E-beam lithography of Nitride Imprint Stamps**

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- **Motivation:** Stamps for Directed Self-Assembly
  - Self-assembled nanopores in anodic aluminum oxide are limited by their uncontrollable alignment.
  - Pores can be directed into an organized pattern after imprints were made on aluminum prior to anodization.

- **Parameters that affect the size of imprint stamp features:**
  - **Negative resist:** works best as the imprinting poles can be written directly.
  - **Beam current:** increasing gun voltage and aperture size results in less resolution but shorter total exposure time.
  - **RIE etching:** increasing etching time results in smaller pole sizes (100nm+), but center to center distances (200nm+) stay the same.

*SEM of imprint stamps of various sizes.*

*AFM of 300nm center-to-center stamp. (courtesy of Liwen Tan)*