DLP printing of tunable magnetic composites

Isabella Chu, **Lorenzo Valdevit**, Naji Tarabay, **Camilo Velez-Cuervo**
(University of California, Irvine)

- Photosensitive resins containing magnetic nanoparticles were successfully synthesized and used to 3D print composite magnets via Digital Light Processing. The 3D printed cubes displayed in the figure (top) clearly exhibit magnetic response (bottom), with magnetic properties that can be tuned by modifying particle chemistry and concentration.

- The ability to 3D print magnetic materials introduces exciting opportunities in the design and fabrication of magnets with very complex shapes and locally tunable magnetic properties. Even more exciting functionalities will emerge from control of the magnetization direction of the particles and from the introduction of 3D printing processes with nanoscale resolution.

- This achievement helps demonstrate the opportunities offered by fabrication of optimally designed active nanoarchitected materials with unique functionalities.