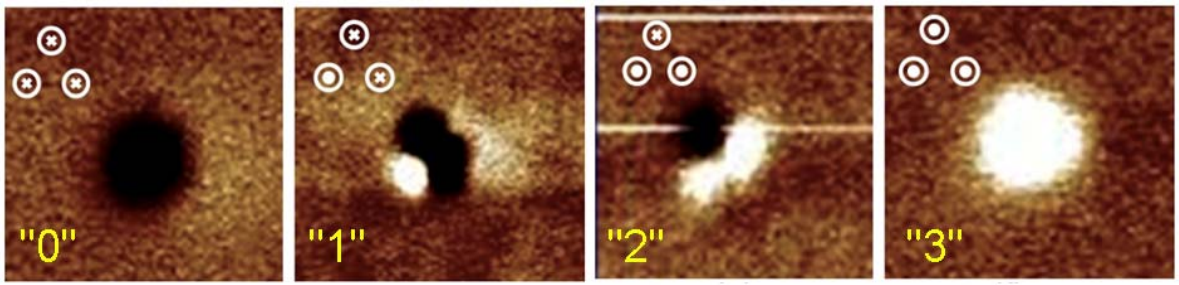
Beyond Binary: Nanomagnet Clusters for Data Storage



Using ultrahigh resolution electron beam lithography, a team led by Prof. Mark Tuominen at the University of Massachusetts Amherst has fabricated clusters containing a well-defined number of interacting cobalt nanomagnets. With multiple stable states, the clusters can be used to encode and store data beyond the limits of conventional binary storage. This method may serve as a way to pack more data into a fixed area in hard drive and memory applications. The researchers are now attempting to scale-up the fabrication of these multistate nanomagnets to larger areas by using hierarchical patterning methods on diblock copolymer films.

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