

Abstract Submitted  
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**Self-assembly of Nano-rods in Photosensitive Phase Separation**

YA LIU, OLGA KUKSENOK, EGOR MARESOV, ANNA BALAZS, University of Pittsburgh — Computer simulations reveal how photo-induced chemical reactions in polymeric mixtures can be exploited to create long-range order in materials whose features range from the sub-micron to the nanoscale. The process is initiated by shining a spatially uniform light on a photosensitive AB binary blend, which thereby undergoes both a reversible chemical reaction and phase separation. When a well-collimated, higher intensity light is rastered over the sample, the system forms defect-free, spatially periodic structures. We now build on this approach by introducing nanorods that have a preferential affinity for one the phases in a binary mixture. By rastering over the sample with the higher intensity light, we can create ordered arrays of rods within periodically ordered materials in essentially one processing step.

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