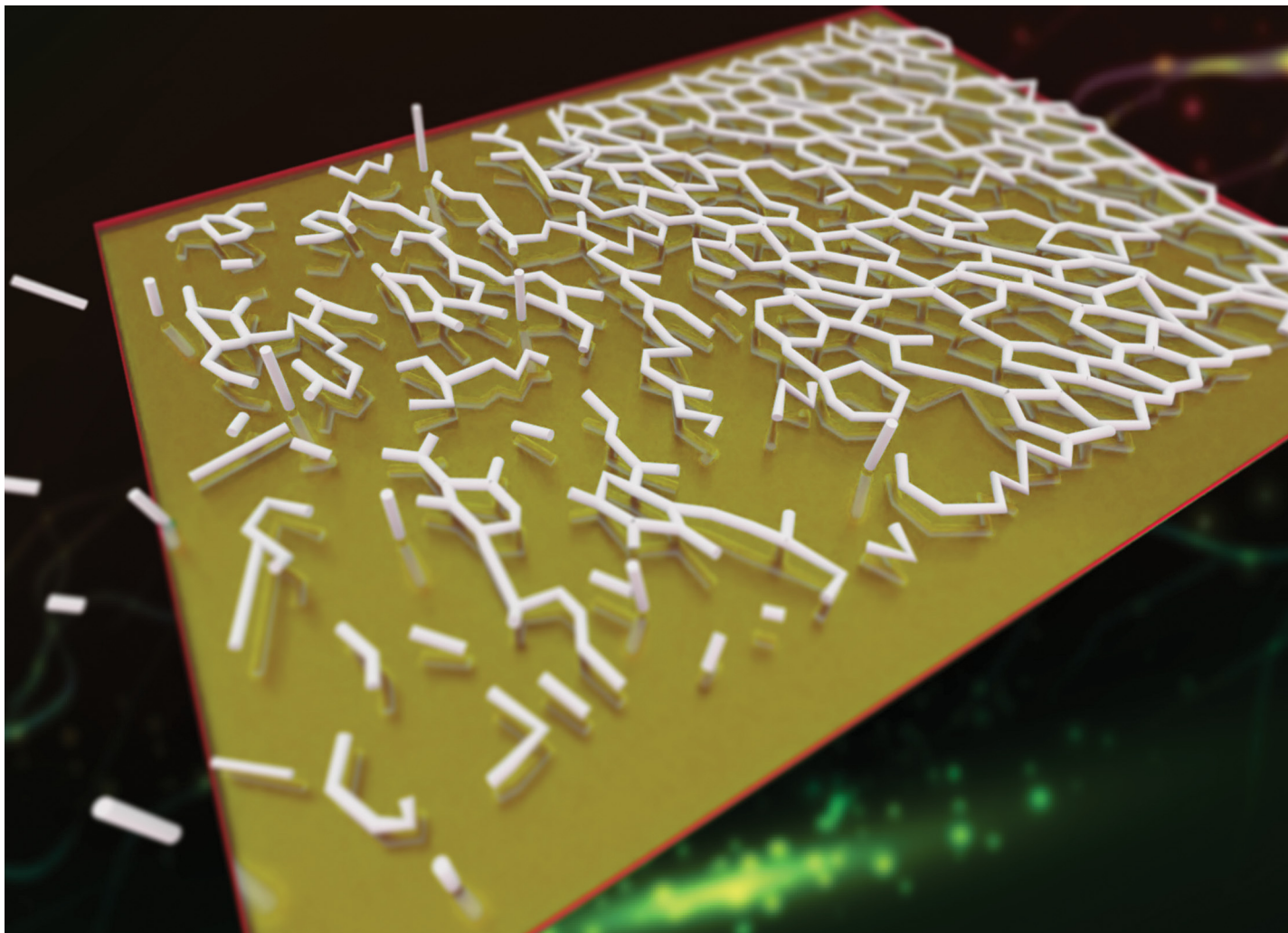




Showcasing research from Professor Alvarez's laboratory, University of Bordeaux (CRPP, CNRS) France, in collaboration with Utrecht University (Netherlands), ETH Zurich (Switzerland), and University of Granada (Spain).

Field-driven reversible networks from colloidal rods

This work presents a strategy for assembling rod-like colloidal particles into reconfigurable quasi-2D networks using AC electric fields. By controlling the frequency and amplitude of the field, the structure transitions from isotropic dispersions to interconnected networks. Experiments and Monte Carlo simulations demonstrate that field-induced dipolar attractions drive percolation at lower area fractions than in non-interacting systems. The approach enables dynamic tuning of network porosity and connectivity, offering a versatile platform for designing soft materials with adaptive structural and transport properties.

Image reproduced by permission of Laura Alvarez Frances from *Soft Matter*, 2025, **21**, 4596.

As featured in:



See Marjolein Dijkstra,
Carla Fernández-Rico,
Laura Alvarez *et al.*,
Soft Matter, 2025, **21**, 4596.