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Process for Ultranarrow Inorganic Nanowire Assembly on Noncovalent Template

A noncovalent template process enables precise orientation of flexible gold nanowires, facilitating the design of high-feature-density nano-electronic devices.

Orientating anisotropic nanostructures at interfaces during device fabrication has been known to be a significant challenge. Researchers at Purdue University have developed a process for designing flexible ulta-narrow gold wires on a noncovalent template. Designs inspired by nature principles create minimal polar environments that exhibit membrane-mimetic dipole orientation behavior, impacting orientation of objects in nonpolar surroundings over relatively long distances. This technology demonstrates that striped phases of horizontally-oriented phospholipids presenting 1 nm wide orientable dipole arrays can order and straighten flexible 2 nm diameter gold nanowires with lengths greater than 1 Âµm which greatly exceeds the template pitch of around 7 nm. This technology ultimately assist in the design of devices or nano-electronic devises with high feature densities.

Advantages:

-Orientate nanostructures

-Flexible electronics

Potential Applications:

-Electronic Devices

Publication: One Nanometer Wide Functional Patterns with a Sub-10 Nanometer Pitch Transferred to an Amorphous Elastomeric Material.

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