

One-Step Method of Fabricating Tunable Vertically Aligned Nanocomposites (VANs)

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Categories:

- Materials and Manufacturing
- Micro & Nanotechnologies

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- Materials and Manufacturing
- Micro & Nanotechnologies
- Photonic Devices
- Vertically Aligned Nanocomposites

Researchers at Purdue University have developed a hybrid plasmonic thin film two-phase vertically aligned nanocomposite (VAN) with controllable metal pillar density with tunable diameters from 2 – 10 nm. Compared to other single or double phase plasmonic materials, this technology is relatively simple as it is a one-step growth method and can produce two phase nanocomposites with high crystalline quality that enables good material performance. Furthermore, this technology is flexible/tunable in terms of materials, density of secondary phase, nanopillar dimensions, and the film can be scaled up as desired.

Advantages:

- Tunable
- Applicable in a wide range of materials
- Good material performance
- One-step growth method

Potential Applications:

- Two-phase vertically aligned nanocomposite
- Photonic devices

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