

Linear aggregation of spherical nanogolds in carbon nanotube suspension under influence of AC electric field.

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We reported a novel method to align spherical nanogolds into linear chains, mediated by induced-electric dipoles from carbon nanotubes in the suspension under AC field. Nanogolds were suspended along with carbon nanotube in water under an AC field of magnitude 100 volts/mm and frequency range of 25 - 1,000 KHz. Typically the electric polarization of nanoparicles are very small because of their small volume and we did not observe their dipole-dipole interaction forces under the presence of electric field. However, introducing carbon nanotubes into the suspension made the nanogolds interact with each other and form linear chains directed along the field line. We also found that linear chains can attract from the side and form fatter chains.

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