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Highly-branched anisotropic hybrid nanoparticles at surfaces. VLADIMIR TSUKRUK, Georgia Tech — We present a brief overview of our recent studies on combined hybrid anisotropic structures composed of inorganic nanoparticles and highly branched molecules such as modified silsesquioxanes polyhedra cores (POSS) with mixed hydrophobic-hydrophilic tails and silver nanowires with functionalized star block copolymer with embedded gold nanoparticles (nanocobs). We demonstrate two-stage melting of that branched POSS and their ability to form monolayer and multilayered LB structures. On the other hand, we observed that silver-BCP-gold nanocobs display extremely bright Raman scattering caused by surface enhanced Raman effect with very different longitudinal and transversal optical properties as revealed by high-resolution confocal Raman microscopy. To study these hybrid nanostructures we applied combined AFM, SEM, TEM, XPS, SERS, UV-vis, and XR techniques.

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