梁啟德與陳永芳教授團隊合作發表結果在Advanced Optical Materials上並被期刊選為Inside cover

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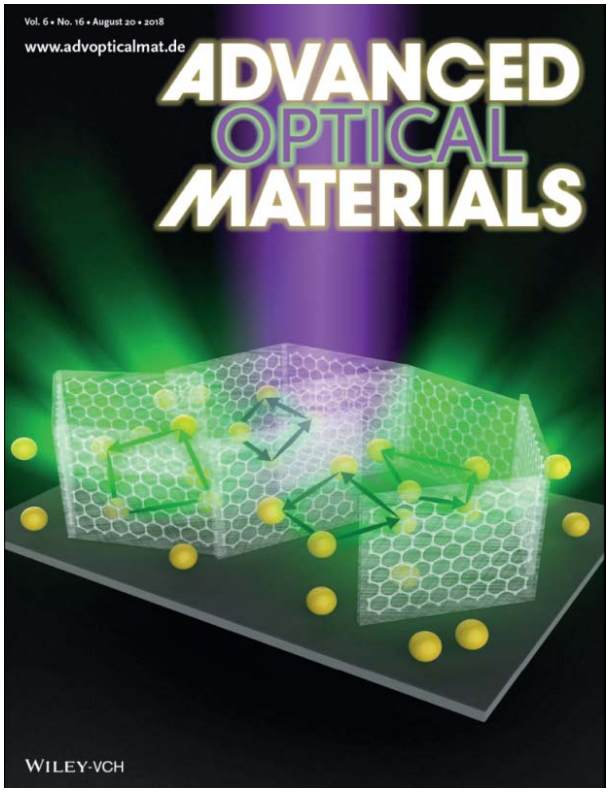

Blue

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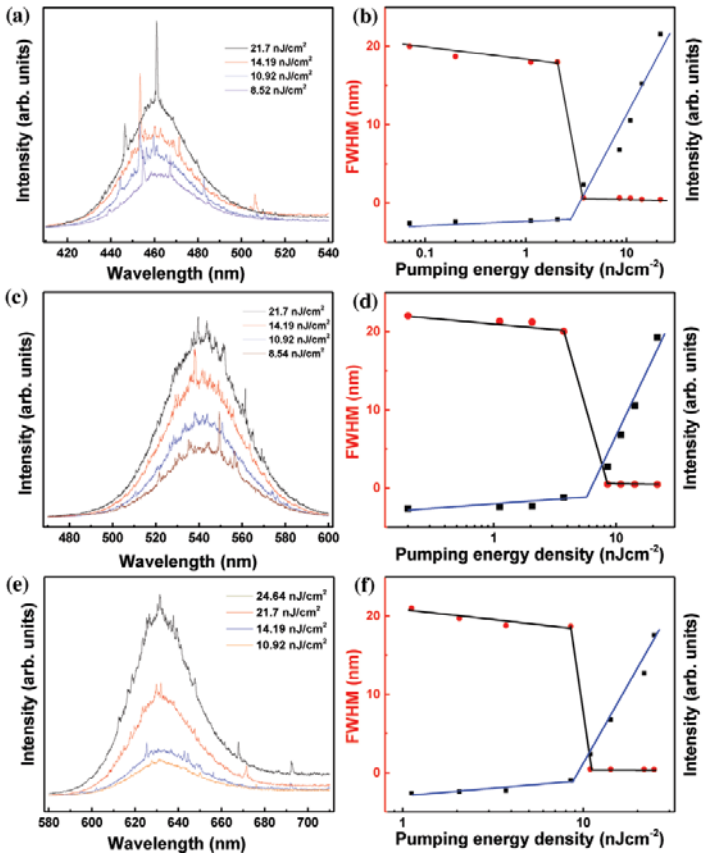

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In this work, ultralow-threshold random laser action from semiconductor nanoparticles assisted by a highly porous vertical-graphene-nanowalls (GNWs) network is demonstrated. The GNWs embedded by the nanomaterials produce a suitable cavity for trapping the optical photons with semiconductor nanomaterials acting as the gain medium. The observed laser action shows ultralow values of threshold energy density ≈10 nJ cm^{-2} due to the strong photon trapping within the GNWs. The threshold pump fluence can be further lowered to ≈1 nJ cm^{-2} by coating Ag/SiO_2 upon the GNWs due to the combined effect of photon trapping and strong plasmonic enhancement. In view of the growing demand of functional materials and novel technologies, this work provides an important step toward realization of high-performance optoelectronic devices.