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The effect of geometrical parameters on the thermoplasmonics properties of gold nanostars for photothermal therapy

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Abstract

In recent years, there has been an increasing interest in using plasmonic nanoparticles as heat sources with the ability to be controlled remotely by light, which has led to the emergence of the field of thermoplasmonics. In this regard, gold nanostars are unique nanomaterials with the inherent ability to create a limited thermal effect at the nanoscale. Therefore, in this article, the plasmonic and thermoplasmonic properties of gold nanostars have been investigated. In addition, the changes caused by some geometrical parameters such as the size of nanoparticles and their thickness on the local electric field enhancement and increasing the surface temperature of nanostars have been reported.

Keywords: thermoplasmonics, plasmonic surface plasmon resonance, gold nanoparticles, nanostars.

For full article, refer to the Persian section