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(57) Abstract :

Accordingly, embodiments herein disclose a nano-structured optical filter for advanced spectroscopic applications. The proposed optical filter comprises a first filter region having a first layer of a first refractive index and a plurality of first metal nanostructures in the first layer. Further, the proposed optical filter may include a second filter region comprising a second layer of a second refractive index and a plurality of second metal nanostructures in the second layer. The proposed optical filter comprises a protection film covering the first filter region and the second filter region. The first metal nanostructures and the second metal nanostructures have substantially a same shape as a nanosphere, and the first metal nanostructures and the second metal nanostructures are different materials.

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