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SAWTOOTH METASURFACE SOLAR ABSORBER BASED ON GRAPHENE MONOLAYER SHEET
FOR NEAR INFRARED REGION (NIR-A)**Abstract**

We have presented graphene metasurface based solar absorber with artful articulated geometries sizes with edge adjustment options along with proximity positioning for achieving broadband absorption in Infrared region. We have designed a graphene metasurface based solar absorber for achieving maximum average broadband absorption above 85% in NIR-IR-A range from 214 THz to 384 THz. More importantly absorption frequency can be dynamically controlled by varying nanostructure parameters and by sheet of graphene which exhibits tremendous application value in space fields to design passive sensors. One graphene based broad band absorber will serve the task of multiple absorber therefore overall size of device is also reduced. In addition, we have used tungsten instead of gold to make graphene metasurface based solar absorber cost effective. The proposed design provides broadband absorptance which is applicable in energy harvesting and electromagnetic shielding.