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Improved Water Purification Rates in Solar System using Plasmonic Particles

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ABSTRACT

In 21st century the requirement of clean water is one of the most important need of the hour. Efforts have been taken to provide suitable sufficient water to worldwide population. Global climate changes and water quality deterioration act as major setbacks in production of clean water. Current nanofabrication methods are capable enough to improve waste water treatment efficiency as well as proper disposal of waste water. Here we report a quantitative study which compares two of the popular waste water treatment processes on a nanoparticle scale which are nanoparticle dispersions [amorphous carbon nanoparticles dispersed in ethylene glycol and Multi-walled carbon nanotubes (MWCNTS) dispersed in distilled water] to conventional process of waste water treatment (TiNOX coated copper substrate) their relative thermal efficiencies have been compared under similar operating conditions. It has been found that higher average stagnation temperatures are achievable if the electromagnetic radiation is allowed to directly interact with a heavy mass of fluid.

Keywords: Nanoparticle, Solar systems, Water purification.