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Using nanofluids in enhancing the performance of a novel two-layer solar pond

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Abstract: A novel two-layer nanofluid solar pond is introduced. A mathematical model that describes the thermal performance of the pond has been developed and solved. The upper layer of the pond is made of mineral oil and the lower layer is made of nanofluid. Nanofluid is known to be an excellent solar radiation absorber, and this has been tested and verified using the mathematical model. Using nanofluid will increase the extinction coefficient of the lower layer and consequently will improve the thermal efficiency and the storage capacity of the pond . The effects of other parameters have been also investigated.