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(57) Abstract :

**ABSTRACT A NANOFLUID-BASED HEAT TRANSFER SYSTEM AND METHOD FOR COOLING APPLICATIONS** The present invention relates to a nanofluid-based heat transfer system and method for cooling applications. The system includes a nanofluid, consisting of a base fluid mixed with highly conductive nanoparticles. These nanoparticles significantly increases the thermal conductivity of the fluid, enabling more efficient heat transfer than traditional cooling liquids. The system comprises heat exchanger (1), cooling unit (2), pump (3), nanofluid reservoir (4), sensor (5) and control unit (6). The stability mechanism employed to prevent nanoparticle aggregation and sedimentation which is achieved through surface modification, surfactant coatings, and pH adjustments, ensuring that the nanoparticles remain evenly dispersed throughout the fluid for extended periods. To be Published with Figures 1 and 2

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