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THERMOPHYSICAL CHARACTERISTICS OF ETHYLENE GLYCOL-BASED COPPER NANOFLUIDS USING NONEQUILIBRIUM AND EQUILIBRIUM METHODS

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SUMMARY: The present study calculates thermal conductivity and reveals molecular-level mechanisms for copper nanoparticles suspended in ethylene glycol using molecular dynamic simulations. Computed thermal conductivities of the nanofluids using Green-Kubo formalism and using Nonequilibrium MD Methods are compared. Contributions for possible heat transfer modes at the molecular level are quantized, including modes of convection and conduction.