

Thermal Transport Across Heterogeneous Surfaces

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Heat transport across material fluid interfaces is crucial in several applications, from smart fluids for thermal transport to applications in medicine or catalysis. A current challenge is the spatial control of nanoscale heat transport. Achieving such control could bring benefits and expand the scope of thermal transport in applications and materials science. Here, we will discuss strategies to control heat transport at the nanoscale, where the heat is generated by plasmonic structures. Heterogeneous interfaces with contrasting hydrophobicity and structure provide an approach to sustain significant thermal gradients and to modulate large temperature variations across nanometer lengthscales. We analyse the implication of these observations in the applicability of the continuum classical theory of thermal transport.

References

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