Directional thermal photonics

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Thermal radiation is a ubiquitous phenomenon, with all objects at finite temperatures emitting radiation due to the thermally induced motion of particles and quasiparticles. This typically results in thermal radiation that lacks directionality in the far field. In this talk, I will discuss our recent work on the directional control of thermal radiation, including angular-asymmetric spectrally-selective thermal radiation, broadband directional and unidirectional thermal radiation, and their implications for improving the efficiency of radiative heat transfer. Toward the end of the talk, I will also briefly discuss the potential of angular photon control for information detection and processing.