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Enhanced thermal emission from individual antenna-like nanoheaters SNORRI INGVARSSON, Science Institute, University of Iceland, JAMES A. LACEY, HENDRIK F. HAMANN, IBM T.J. Watson Research Center, Yorktown Heights, NY 10598 — We report polarization-sensitive, thermal radiation measurements of individual, antenna-like, thin film Platinum nanoheaters. These heaters confine the lateral extent of the heated area to dimensions smaller or comparable to the emission wavelengths. We investigate the polarization patterns of the far-field radiation from individual nanoheaters as a function of length and width. For very long and narrow heater structures, we measure dipolar-like polarization patterns of the thermal radiation with high extinction ratios. Associated with these high extinction ratios for narrow and long heater structures, a significant enhancement of the thermal emission is observed. Our findings suggest the possibility of a strong infra-red near-field in the close vicinity of the nanoheaters with potential applications e.g. in microscopy.

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