Near field heat transfer in superlattices[1] RAUL ESQUIVEL-SIRVENT, Instituto de Fisica, UNAM — I present a theoretical calculation of the near field heat transfer between super lattices made of alternative layers of both metallic and semiconducting materials. The calculation of the near field transfer requires the knowledge of the reflectivities, that are obtained by calculating the surface impedance of the super lattice. Depending on the periodicity of the lattice and the dielectric function of the materials the near field heat transfer can be modulated or engineered. Additional control on the heat transfer is achieved by introducing defects in the superlattice. The results are extended to include photonic hypercrystals that effectively behave like a hyperbolic metamaterial even in the near field (1), where the tuning of the heat transfer is modified by (1) E. E. Narimanov, Phys. Rev. X 4, 041014 (2014).

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