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Renormalization of QED at Finite Temperatures. SAMINA MASOOD, Univ. of Houston Clear Lake — Renormalization of QED at different temperatures is studied in the background of real particles. It is explicitly shown that the second order thermal modifications to electromagnetic properties of a hot medium are nonzero at temperatures below the electron mass. However the second order contributions are smaller than the first order contribution at these temperatures which ensures the renormalization of QED in this situation. However, the situation changes at high temperatures. The overlap of hot infrared singularities in Lorentz invariance breaking formalism with usual cold ultraviolet divergences of vacuum has to be handled in a special order to avoid un-removable singularities.

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