Abstract Submitted
for the TSS17 Meeting of
The American Physical Society

**Dynamics of Particles in the Early Universe at High Temperature** SAMINA MASOOD, University of Houston Clear Lake — We study the electromagnetic properties of particles in the early universe and show that electromagnetic properties of the system become explicit functions of temperature for such systems. Parameters of the system such as dielectric constant, magnetic reluctivity, Debye length and the plasma frequency are expressed as a function of temperature in the early universe. Renormalization techniques of QED are used to determine the collective behavior of the medium. We compute propagation speed, refractive index, plasma frequency and Debye shielding length of a QED plasma at extremely high temperatures in the early universe.

Samina Masood
University of Houston Clear Lake

Date submitted: 22 Feb 2017 Electronic form version 1.4