# Applied Math Seminar

# "New Classes of Spherically Symmetric, Inhomogeneous Cosmological Models"

**BY**

## Yaghoub Heydarzade
**(Bilkent)**

**Abstract:** We present two classes of non-singular, inhomogeneous, spherically symmetric solution of the Einstein-Maxwell-Perfect fluid field equations with cosmological constant generalizing the Vaidya-Shah solution. Some special limits of our solution reduce to the known inhomogeneous charged perfect fluid solutions of the Einstein field equation and under some other limits we obtain new charged and uncharged solutions with cosmological constant. We show that there exist some spacelike surfaces where the pressure and mass density of the fluid distribution diverge. We study the behavior of our new solutions in their general form as the radial distance goes to zero and infinity, and also in the neighborhood of the big-bang singularity as well as for the late times.

**Date:** 11 April, Thursday
**Time:** 14:40
**Place:** Mathematics Seminar Room, SA- 141

Tea and cookies will be served after the talk. You are most cordially invited.