

**SEMINAR ANNOUNCEMENT**

**國立中山大學物理系113學年度第二學期專題演講**

# **COSMIC RAY FEEDBACK IN THE UNIVERSE: FERMI BUBBLES AND ODD RADIO CIRCLES**

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**ABSTRACT:**

**RELATIVISTIC JETS FROM SUPERMASSIVE BLACK HOLES (SMBHS) ARE VITAL DRIVERS OF MASSIVE GALAXY PROPERTIES, AND COSMIC RAYS (CRS) WITHIN SMBH JETS HAVE SHOWN TO BE A KEY INGREDIENT IN THE PROCESS. IT IS THEREFORE CRUCIAL TO MODEL THE EFFECTS OF CRS SELF-CONSISTENTLY IN NUMERICAL SIMULATIONS. IN THIS TALK, I WILL PRESENT HOW WE COULD APPLY 3D CR-MAGNETOHYDRODYNAMIC (MHD) SIMULATIONS TO UNDERSTAND ENIGMATIC PHENOMENA IN THE UNIVERSE, INCLUDING THE FERMI BUBBLES WITHIN THE MILKY WAY GALAXY, AS WELL AS THE NEWLY DISCOVERED ODD RADIO CIRCLES (ORCS). OUR INVESTIGATIONS SUGGEST THAT BOTH PHENOMENA COULD BE EXPLAINED BY POWERFUL JET ACTIVITY OF SMBHS.**

**TIME**

**MAR. 20, THU.**

**14:10**

**VENUE**

**PH2006**

