

Lundi 08/04/2013, 11h00-12h00

CEA-Saclay Bat 141, salle André Berthelot

Seeing galaxy clusters through Cosmic Microwave Background : Sunyaev-Zeldovich effect

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Sunyaev and Zeldovich predicted in 1972 that microwave background photons coming from the directions of galaxy clusters will show spectral distortion due to the Compton scattering by high-temperature electrons that exist in the galaxy cluster plasma. This phenomenon was observed by Gull and Northover in 1976. Recent Sunyaev-Zeldovich effect observations with the use of interferometric telescope arrays by University of Chicago group led by John Carlstrom have revolutionized the field. By this method detailed Sunyaev-Zeldovich effect maps of about 60 galaxy clusters have been obtained by University of Chicago group. Many ongoing Sunyaev-Zeldovich survey observation projects of galaxy clusters will reveal thousands of galaxy clusters and will shed light on the evolution of the universe, providing us with a method to measure the Hubble constant, the dark matter content in our universe, and the dark energy content in our universe. On the theoretical side, accurate relativistic corrections to the Sunyaev-Zeldovich effect have been calculated by our group as well as some other groups, thus enabling the precision theoretical treatment. These relativistic corrections are essential for the ongoing high-frequency observations of galaxy clusters.

Le café sera servi 10 minutes avant.

NB : La présentation d'une pièce d'identité est exigée à l'entrée du centre. Tous les auditeurs extérieurs sont priés de prévenir à l'avance Martine Oger, tél. 01 69 08 23 50, e-mail : martine.oger@cea.fr. (U.E. : délai de 24 h, hors U.E. : délai de 4 jours).