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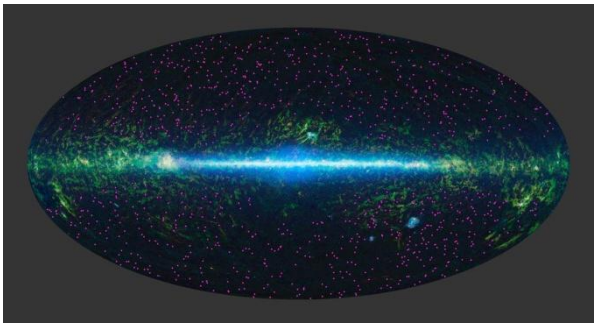
TIME: Wednesday, 2:30 PM, Sep. 25, 2013 LOCATION: A601 NAOC

Hot DOGs:
The most luminous galaxies in the universe

Dr. Jingwen Wu (UCLA)

Dr. Jingwen Wu is currently an assistant researcher at the Univ. of California, Los Angeles. He obtained a PhD in Astrophysics at the Univ. of Texas (Austin) in 2006. He was a SMA postdoc fellow at Harvard-Smithsonian Center for Astrophysics, and a NASA postdoc fellow at Caltech/JPL. He joined WISE team since 2010. His research interests include massive star formation in the Galaxy, connecting star formation from the Milky Way to distant galaxies, and star formation and galaxy evolution in high-redshift, hyper-luminous galaxies.

Abstract



NASA's Wide-field Infrared Survey Explorer (WISE) has finished surveying all-sky at 3.4, 4.6, 12 and 22 microns (W1 to W4). One of the major science goals of WISE is to identify the most luminous galaxies in the universe. In this talk I will summarize the discovery and the follow-up study of a rare, possibly new population of galaxy discovered by WISE, the hot dust-obscured-galaxies or Hot DOGs, which turns out to be among the most luminous galaxies in the universe. There are only about ~1000 Hot DOGs in the sky. Follow-up observations using Herschel, Spitzer, Keck and other ground-based telescopes for more than 200 Hot DOGs have been completed. These observations reveal that Hot DOGs are mostly at z=2-3, with a similar redshift distribution to the submillimeter galaxies (SMGs) and classical dust-obscured-galaxies (DOGs), but have a much higher infrared luminosity (mostly > 10^13 Lsun, with 10% greater than 10^14 Lsun that rivals the most luminous QSOs we know). Their SEDs are different from existing galaxy templates, characterized by very hot dust emission that likely comes from a super powerful, highly obscured AGN. They may either host the most massive, active, super massive black holes (SMBHs) over the sky, or are experiencing a short, special accretion phase during galaxy evolution (a missing link?). I will discuss the AGN and star formation activities in these Hot DOGs, and talk about its possible evolutionary connections to the SMGs, DOGs, and optical QSOs.

All are welcome! Tea, coffee, biscuits will be served at 2:15 P.M.

You are welcome to nominate speakers to Weimin Yuan (wmy@nao.cas.cn), Mei Zhang (zhangmei@bao.ac.cn), Licai Deng (licai@bao.ac.cn), Xuelei Chen (xuelei@cosmology.bao.ac.cn), Shude Mao (smao@nao.cas.cn)