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国台学术报告 NAOC COLLOQUIUM

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Time: Wednesday 2:30 PM, Oct. 31th **Location: A601, NAOC**

Measurement of high redshifts of submillimeter galaxies with the new NOEMA system

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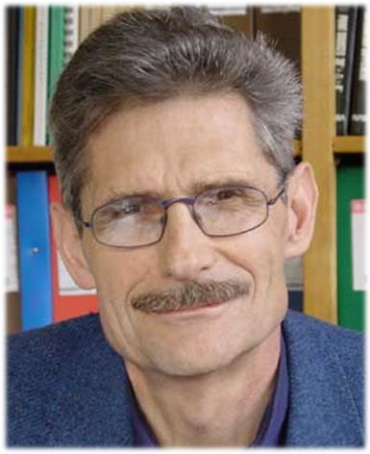

Prof. Alain Omont is emeritus Research Director at Institut d'Astrophysique de Paris (IAP) (CNRS and Sorbonne Université), after being university professor and director of Grenoble Observatory and IAP. After a PhD in atomic physics, he has 40-year experience in the interstellar medium, both local (+circumstellar) and especially at high redshift, by and infrared and specially millimetre observations of molecules (and dust), and by modelling. His main research topics have been: circumstellar chemistry and dust; infrared surveys; high-redshift dust and molecules; star formation and evolution of high-z galaxies and quasars; physics of interstellar PAHs and fullerenes.

Abstract

Redshift determination is the main difficulty for exploiting the few 10^5 high-redshift submillimeter galaxies (SMGs) discovered, e.g., by the Herschel Space Observatory, at z~2-4. CO line blind search is the most efficient way for such redshift determination. The broad band (twice that of ALMA) of the new receptor system of the IRAM NOEMA interferometer is very efficient for that, as we have just proved in a pilot project. We have thus measured the redshift of 12 bright Herschel-selected SMGs in about 1.5h of telescope time per source. Based on these results, that I shall discuss, we plan a NOEMA Large Program of ~190 hours for determining ~120 redshifts of strongly lensed or hyper-luminous (L_FIR > 10^13 L_sun) SMGs. The aim is to provide a sample of about 200 SMGs with reliable redshifts, to address the following science goals: i) increase the number of lensed SMGs with known redshifts at the peak of the cosmic star-formation rate density; ii) find hyper-luminous SMGs (and rare objects) and study their statistical properties; iii) enable follow-up observations of the lensed sources and derive the properties of the massive deflector dark matter haloes at z~0.5-1 and the large-scale structures they trace; iv) measure cosmological parameters; and v) further explore the physical properties of these dusty luminous star-forming galaxies in the early universe.

All are welcome ! Tea and coffee will be served at 2:15 PM.