[Room/Salle : Campaign B] ***Chair: P. Martin, U.Toronto***

TU-A18-1 11h45

Cold Hydrogen Clouds in the Milky Way: An Evolutionary Missing Link?, **Russ Taylor**[1], S.J. Gibson[1] and S.T. Strasser[2], [1]*University of Calgary* and [2]University of Minnesota — The high angular resolution of the International Canadian Galactic Plane Survey has revealed a wide-spread, cold atomic hydrogen component of the interstellar medium in the form of dark self-absorption cloud complexes. These clouds resemble molecular cloud complexes in structure and trace the spiral arm structure of the Galaxy. While they occupy an *l*,*b*,*v* space similar to that of CO clouds, there is no strict correlation between cold atomic hydrogen clouds and CO emitting gas. Nevertheless, continuum absorption studies show that some of the cold atomic hydrogen clouds have temperatures as low as 15–20 K – similar to dense molecular clouds. We examine the hypothesis that cold atomic hydrogen revealed by these observations represents a phase in the evolution of the ISM marking the transformation of warm diffuse atomic hydrogen gas to molecular clouds, perhaps triggered by compression from the passage of spiral arm density waves.

TU-A18-2 12h00

A Submm Survey of High-Redshift Clusters: A submm Butcher-Oemler Effect?*, **Tracy Webb** [1], H. Yee [2], H. Hoekstra [2] and M. Gladders [3], [1] *Leiden Observatory;* [2] University of Toronto and [3] Carnegie Observatories — We present the first results of a submm survey designed to investigate star-formation in high-redshift clusters. Recently, an excess of submm-luminous galaxies (SMGs) in high-redshift cluster fields has been reported. If real, this excess can be attributed to an exceptionally high lensing cross-section for a subset of high-redshift clusters, or as an increase in the number of dusty star-forming galaxies in clusters at higher redshift. This second scenario is essentially a submm Butcher-Oemler effect, perhaps due to accretion of field galaxies, or major cluster mergers. To verify the excess of SMGs and and to differentate between the two scenarios, we have begun a submm survey using SCUBA at JCMT of a sample of $0.6 < z < 1.1$ clusters drawn from the Red-Sequence Cluster survey. We have selected clusters which show multiple strong optical arcs, and a control sample of equally rich clusters which do not exhibit strong lensing. We will discuss the preliminary results and implications of the survey, based on the first half of the sample.

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TU-A18-3 12h15

Sub-Millimetre Science With the New Generation of Total-Power, CCD-Style Bolometer Arrays, **Colin Borys**, *California Institute of Technology* — The development of close-packed bolometric arrays was responsible for a renaissance in sub-millimetre astronomy. Highly successful imaging campaigns using the SCUBA and MAMBO cameras have discovered a cosmologically significant population of dust enshrouded galaxies that contribute as much to the energy density of the Universe as optical light. Within our own galaxy, sub-mm surveys reveal sites of vigorous star-formation that are practically invisible otherwise. The next step in detector development follows a common theme in astronomy: large format cameras with a wide field of view and increased detector sensitivity. However unlike most optical CCDs, the new generation of sub-mm cameras also have to contend with a paradigm shift in data reduction approaches in addition to new detector technologies. Here I report on the trials and triumphs with the first facility, total-power CCD style sub-mm camera: SHARC-II. Commissioned at the Caltech Submillimeter Observatory in 2003, SHARC-II now routinely detects objects both at high redshift and locally. The data acquisition and image reduction approaches are similar to what will be required for the next leap in CCD-style sub-mm cameras: SCUBA-2. Canada plays a strong role in developing this instrument, and for good reason: with its unprecedented field of view and mapping speed, SCUBA2 will dramatically improve our understanding of the sub-mm Universe.

12h30 Session Ends / Fin de la session