

April 24, 2008

Dr. Melvyn Wright  
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2008 CARMA Summer School

Dear Dr. Wright:

I am a 5<sup>th</sup> year graduate student at the University of Massachusetts, Amherst (UMass), and I would like to attend the 2008 CARMA summer school this June.

My thesis work involves studying sub-mm/mm-detected galaxies, which are believed to be highly dust-obscured, extreme starburst galaxies at high redshift. Understanding of the nature of these sources is difficult given their faintness or non-detection at optical/IR wavelengths. Even with the deepest optical/IR data available, it is often difficult to determine an unambiguous counterpart to a sub-mm/mm-detected source given its large positional uncertainty – a result of low S/N detections and the low resolution of single-dish sub-mm/mm observations – and the high areal number density of optical/IR galaxies in deep surveys. This situation is not likely to improve significantly until the Large Millimeter Telescope (LMT) and ALMA become available. However, a handful of the brightest sub-mm/mm galaxies have been imaged with sub-mm/mm interferometers, including the IRAM Plateau de Bure Interferometer, the Sub-millimeter Array (SMA), and CARMA. Recently, our group has had unprecedented success with the detection of 7/7 1.1 mm AzTEC sources in the COSMOS field with imaging using the SMA. Such interferometric continuum imaging of these sources provides the sub-arcsec positional accuracy need in order to identify the correct multi-wavelength counterparts, which in turn makes it possible to better understand the nature of these sources.

While this type of “detection” project is not appropriate for this summer school, I would greatly benefit from attending this school and learning more about how these interferometric observations work, and how to reduce such data. Generally speaking, I am very interested in data reduction and imaging. As a member of the AzTEC instrument team, I have contributed significantly to developing the data reduction and analysis pipeline used to process AzTEC data. This experience has given me an appreciation of data reduction methods and has taught me the importance of understanding the process in order to interpret the results. I believe that the future of sub-mm/mm galaxy studies lies in interferometric observations, and the CARMA summer school is an excellent opportunity for me learn more about these observations and to gain a valuable skill that I will use in my future work.

Thank you for considering my application,



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