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The CARMA summer school will enhance the quality of my thesis by (1) improving my understanding of interferometers, (2) developing essential observing and calibration skills, and (3) gaining knowledge that will be useful in writing proposals and may increase my chances of getting observing time critical for my thesis. The two projects that I am leading require millimeter interferometers, and so the techniques discussed at this summer school will be directly applicable.

My current research project is focused on the structure of a proto-planetary disk that surrounds the young star, PDS 66. We have data from the Australia Telescope Compact Array, which allows us to study the dust properties in the disk. Since the radio regime probes larger-sized grains, we can learn about grain growth and total dust masses. When compared to planet formation models, we can then speculate if it is possible for this disk to form planets. Our observations were completed before I was in graduate school, and so I have not had any observing experience at long wavelength. I have already learned the basics of doing calibrations, but learning the theory and more sophisticated calibration techniques will be valuable for my current and future projects.

In addition to studying star-disk systems, we will also explore even earlier stages in star formation; namely, systems that are still surrounded by an envelope. We plan to utilize the high resolution available with interferometers to image the inner regions of the star-disk-envelope system and (1) derive disk masses separately from the envelope masses, (2) observe spiral structure within the disk, and (3) measure the mass of the central star. This will help us understand how proto-planetary disks form and evolve around young stars. Since interferometers, namely CARMA, are capable of resolving disks down to ¼ of their expected size, we can measure more accurate disk masses with little contamination from the envelope.

These two projects will tie in nicely to my PhD thesis, on the structure of dust and gas in proto-planetary disks at different evolutionary stages, which will depend on observations from millimeter interferometers. The CARMA summer school will be valuable for becoming an experienced observer, and improving and building upon my calibration skills. I expect that the new knowledge will be useful in proposal writing as well. Therefore, the multi-faceted skills that will be taken away from this school will lead to a higher quality thesis project.