



QuarkNet has done much for my students and students of my colleagues over the years. Many of these scholars have created their own investigations, learned how to design experiments, equipment, execute the experiment, trouble shoot equipment, learn error analysis, and reporting techniques. For one large group of students, they went beyond QuarkNet and proposed and ran a high energy proton target experiment at FermiLab. Many students learned that a more typical experiment has sever hundred thousand data points, not seven points. The experience has generated great creativity, hard work, and excitement. This was made possible with the equipment and support of QuarkNet.

This past year, an idea arose to measure the cosmic ray flux during a total solar eclipse. The idea came about at the AAPT Winter Meeting 2017, where three students were reporting on the results of their cosmic ray scaling experiment. Two different high schools cooperated in the feasibility, baseline studies, and fabrication of equipment to capture data during the solar eclipse. They put the information and plans out to QuarkNet participants. Over 25 schools partook nation-wide. The students from these two high schools then went to Jefferson College in Hillsboro, MO to conduct the experiment during the eclipse. They collected much data, did analysis that included normalization, and reported their results in both paper and poster sessions at the recent AAPT Winter Meeting. They are now in the process of writing a paper of their results for submission to a refereed journal. So much data was collected that there still remains many research questions to be investigated from this now made public data. The influence on the direct participants was profound, and there are clear ripple effects into the wider community based on their achievements. Cooperation among high schools for scientific research is very much in its infancy, and has much potential for growth.

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