As a member of the STAR collaboration, I have worked on two research projects. The first project involves investigating ρ^0 meson production occurring as the result of photon nucleus scattering in peripheral heavy-ion collisions. I have given multiple talks on the subject:

- *Interference in ultra-peripheral vector meson production in Au+Au Collisions* $\sqrt{s_{NN}}$ *= 200 GeV*, Plenary session Brookhaven STAR analysis meeting, 2007
- *Interference in Coherent Vector Meson Production in UPC Au+Au Collisions at* $\sqrt{s}$ *= 200GeV*, Junior session MIT STAR Collaboration Meeting, 2006
- *Interference in vector meson production in Au+Au Collisions* $\sqrt{s_{NN}}$ *= 200 GeV from STAR*, Division of Nuclear Physics, Nashville, TN, 2006
- *Interference in Vector Meson Production in Ultra-Peripheral Collisions from STAR*, APS-CA division meeting, Sacramento, CA, 2005
- *Photoproduction of* ρ *mesons in Au+Au Ultra-Peripheral Collisions of* $\sqrt{s_{NN}}$ *= 200 GeV from STAR*, Joint Meeting of the Nuclear Physics Divisions of the APS and the Physical Society of Japan, Maui, Hawaii, 2005

I have been an active participant in the Ultra Peripheral Collisions (UPC) working group in STAR. I have been working on a paper entitled 'Observation of Two Source Interference in the Photoproduction Rection $AuAu \rightarrow AuAu\rho^0$'. Moreover, I am currently serving on a godparent committee reviewing a paper to be released from the UPC group for journal publication.

In addition, I have recently begun a second project investigating a jet finding algorithm which involves clustering high momentum tracks together as a trigger 'cluster', rather than using a single high momentum track as a single trigger. A main goal of the project is to measure a fragmentation function for comparison with existing measurements for a better understanding of partonic interactions in the medium created in heavy ion collisions. I have given a talk, and have an upcoming talk on the subject:

- *Effect of Multi-Hadron Triggers on Yields in d+Au and Au+Au*, Parallel session LBL STAR analysis meeting, 2007
- *Multi-hadron triggered azimuthal correlations in Au+Au Collisions at*
- *$\sqrt{s_{NN}}$ = 200 GeV from STAR*, Division of Nuclear Physics, Newport News, VA, 2007 (upcoming)

I have participated in a variety of public outreach activities as a member of the Nuclear group at UC Davis. I have been invited to deliver talks on my research in heavy-ion physics at Sonoma State University (*Creating Mini Big Bangs in the Laboratory*. Invited talk presented as part of the "What Physicists Do" Lecture Series), Hartnell Community College (*'Mini' Big Bangs in*

the Laboratory: Observing a new phase of matter at the Relativistic Heavy Ion Collider), and UC San Diego (*Ultra Peripheral Collisions: A short introduction to a research project in heavy ion physics*. Presented as a talk in the Undergraduate Seminar in Physics). I have acted as a science fair judge at the Academy school in Berkeley, CA. Also, I am a physics team author for the Free High School Science Text (FHSST), a volunteer open source textbook funded by the Shuttleworth foundation.