

Imperial College Stevenson Fund Report

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During the summer I completed a 10-week SURF (Summer Undergraduate Research Fellowship) placement at Caltech in the Department of Astrophysics under Professor Fiona Harrison. My research focused on the study of highly luminous compact objects called Active Galactic Nuclei (AGN), which are found at the centres of some galaxies and are powered by an accreting supermassive black hole. My project involved X-ray spectral studies of a class of AGN referred to as Seyfert galaxies, using data from NASA's NuSTAR space telescope, for which my supervisor is the principal investigator. I found the placement to be an immensely educational experience and I thoroughly enjoyed my time spent in California.

I particularly enjoyed my interactions with the NuSTAR research group, as they created a very friendly and accommodating atmosphere. The weekly group meetings were very informative, as I learnt various technical aspects of the NuSTAR telescope itself, in addition to learning about the fascinating research being carried out by the group members. The meetings also provided me with several opportunities to present my progress on the project, which aided in improving my presentation skills and also enabled me to receive suggestions from the group on areas of interest to focus my project on.

One highlight of my summer placement was the all-night observations that I performed at Palomar Observatory near San Diego. Visiting Palomar Observatory had been a childhood dream of mine and so I greatly valued the opportunity to perform observations there with the 200-inch Hale telescope. It was truly breathtaking being able to observe the night-sky under clear conditions with minimal light pollution and the experience gave me detailed insight into how on-site observing runs are conducted.

In addition to working on my project, I attended numerous events organized by Caltech Student Faculty Programs for summer students that further enriched my research experience. These included guest lectures by leading academics across several departments, career development seminars and evening workshops on graduate school applications. I also visited NASA's Jet Propulsion Lab (JPL) and the California Science Center, where I was able to see the original Endeavor Space Shuttle. I also enjoyed spending some time exploring a few of the many attractions California had to offer, such as Yosemite National Park, Santa Monica Pier and Disneyland.

Overall, I greatly valued having the opportunity to perform research at a world-class academic institution under an esteemed and highly accomplished female professor and I have thoroughly enjoyed the whole experience. I gained much insight into how scientific collaborations are conducted in an international setting and the placement has strengthened my motivation to pursue a PhD in observational astrophysics.

