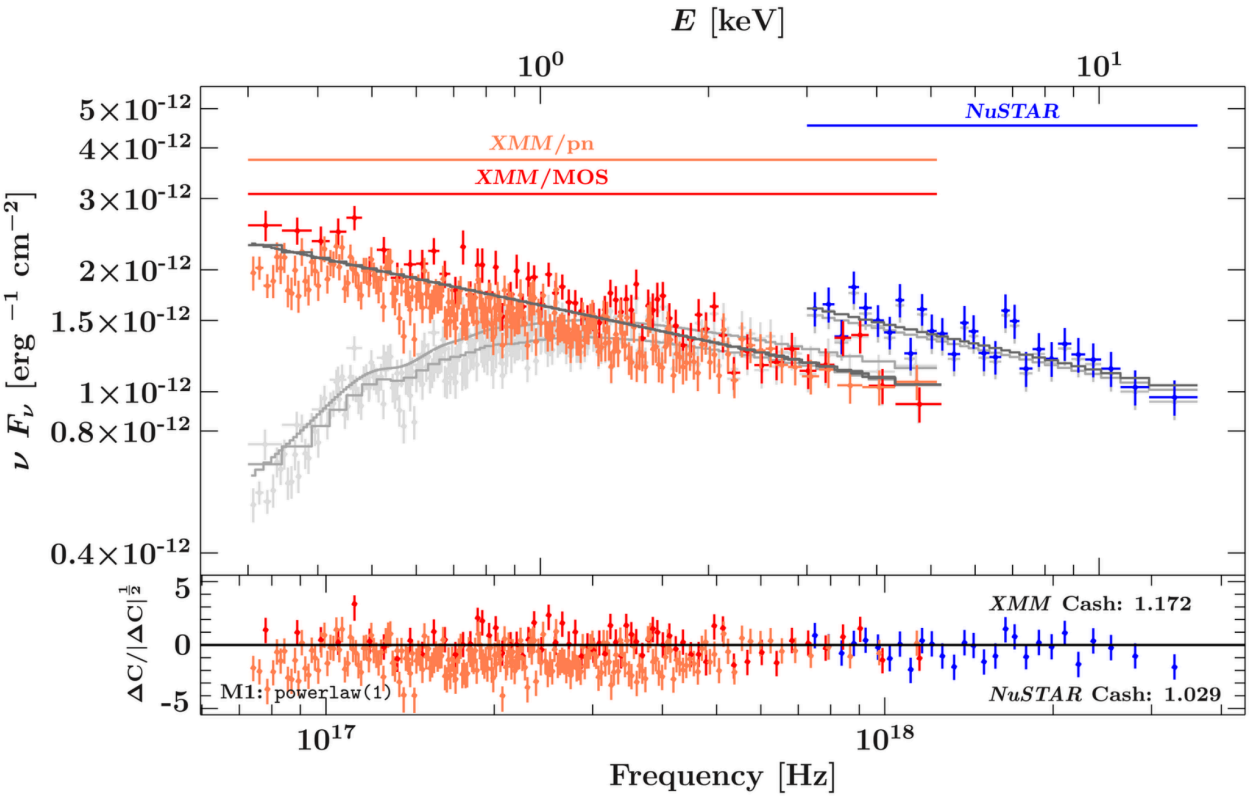
NuSTAR Cycle 7
Ava Biasotti, Class of 2026

This summer, I conducted research on a neutrino event with a high probability of being of astrophysical origin, detected by the IceCube Neutrino Observatory in Antarctica. Neutrinos are elementary particles with extremely low mass and no electric charge. Because of this, they are ideal for locating and studying sources of high energy in the universe. I identified the likely source, a supermassive black hole (SMBH) over one billion light years away, and began analyzing its energy emission this past year. My findings suggest that the SMBH's energy emission may indicate a different classification than what is currently recognized. To investigate this, I compiled X-ray detections from the NuSTAR, *XMM*, and XRT telescopes. I also continued work on the research paper, which will be submitted for peer review and publishing upon completion.



The orange and red data points represent the X-ray detections from two of *XMM*'s instruments, corrected for absorption. The blue data points represent corrected X-ray detections from NuSTAR, while the gray data points show uncorrected data. As X-ray photons travel through space, they may undergo photoelectric absorption, meaning that the number of photons we detect is often lower than the number actually emitted (they are "absorbed" by atoms). To accurately analyze the source's emission spectrum, we must correct for this absorption. The bottom plot shows the residuals from a power-law fit for each telescope.

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