

Principal Investigator: Dr. Ke-Xun Sun

Title: Developing Undergraduate and Graduate Curriculum to Train the Future Nevada Space Science and Engineering Workforce

Abstract:

Space is the last frontier for human exploration and constantly inspires human imagination especially in younger generations. Space industry is a substantial part of US economy, but yet in Nevada. To train the future Nevada workforce in space and engineering, we propose to develop a systematic, advanced curriculum. We will develop and perfect four undergraduate and graduate courses:

1. EE416 / ECG616 "Space Sensors and Instruments" (First offered in 2021)
2. ECG716 "Space Systems" (Offer in 2022)
3. EE417 / ECG617 "Introduction to Space Science" (Offer in 2022-2023)
4. ECG717 "Space Experiments and Observation" (Offer in 2022-2023)

Among them, EE416/ECG616 "Space Sensors and Instruments" has been successfully offered in 2021. Three students took the course, and generated three publication quality course reports, which now become three papers. Two of them have been accepted for presentations at a satellite conference. All students are working on a NASA flight and will pursue Master or Ph.D degrees. UNLV will support a teaching assistant (TA) as institutional matching contribution. The Graduate TA will help with course coordination, assist the PI in scientific computing, and explore NASA space flight modeling software. He will also assist with outreach activities.

Our curriculum development and NASA collaborative research will be mutually enhancing. The PI has been awarded a prestigious flight opportunity to International Space Station (ISS), and two contracts by NASA Jet Propulsion Laboratory (JPL) for developing ISS payload. NASA Ames Research Center and Johnson Space Flight Center will also collaborate in this flight mission. Students in these courses will be encouraged to participate this mission, thus more likely to work at NASA.

We plan to offer all 4 courses by Fall 2023. We will attract best and brightest students, lead them to graduate study for advanced degrees. They will be the future workforce for Nevada space industry.