



Dr. K. Sriram, Ph.D, PDF,

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Specialization:

X-ray studies: Study of X-ray timing and spectral properties of black hole sources, Neutron stars source, white dwarf source and supermassive black holes (Active Galactic Nuclei Source). Study of Physical and radiative mechanisms associated with accretion disk around black holes and Neutron stars (atolls and Z-sources). I also study the post shock regions in neutron star and white dwarf systems. Understanding the phenomenon of Quasi periodic oscillations in black holes, neutron stars and white dwarfs systems. Study the Jet ejection mechanism in black hole and neutron stars sources. By studying these sources, I constrain the size of Corona (a high energy region), which is still a mystery. Monte-Carlo simulation of X-ray energy dependent cross-correlation functions in various spectral states of galactic black holes and neutrons star systems. Proposals submitted to Indian X-ray satellite **Astrosat** for X-ray data for studying neutron stars and white dwarf sources have been accepted. Right now working on the Astrosat and Nustar satellite (a NASA based satellite) data of a neutron star source and Black Hole sources where the nearby material is experiencing strong gravity. I work on AstroSat (ISRO, India), RXTE (NASA), XMM-Newton (ESA), NICER (NASA), NuStar (NASA), Chandra X-ray satellites (NASA).

Optical studies: Study of contact binaries in field and clusters, Algols and beta Lyrae type systems. My main emphasis is on understanding the period changes and evolution of stellar spots and its quasi varying nature in eclipsing binaries along with the study of convective cycle in stars among eclipsing binaries. My group has provided strong evidence of three unseen probable companion stars which are gravitationally bounded in three different binary systems. Rich experience in optical observations, both photometry and spectroscopy with IUCAA 2.0m, Pune and VBT 2.3m telescope, HCT 2.0m Indian Institute of Astrophysics, Bengaluru, India.

Research Publications: Published work can be accessed through <https://www.researchgate.net/profile/K-Sriram>

Software Development: Developing software's for the analysis of X-ray and optical data in Linux platform. Developed codes to study the Fourier lags in X-ray binary sources. Matlab codes to study the third bodies/exoplanets in binary systems. Scripts to study the period variations in all kinds of binary star systems. Member of Astronomical Society of India (ASI) and South Korean Astronomical Society (KAS) and achieved two Best Post-doctoral fellowship awards at Korea Astronomy and Space Science Institute (KASI), South Korea for the years 2011 and 2012.

Prestigious fellowship: Korea Young Scientist fellowship in the duration of 2011-2013. Received Vice Chancellor award in 2022 at Osmania University.

Visiting fellow: Tata Institute Fundamental Research Institute (TIFR), Mumbai, India and **Associate** of Inter University Centre for Astronomy and Astrophysics (IUCAA), Pune, India.

Projects 1. DST –SERB Fast track programme Project “Understanding the physical and radiative structure of accretion disk in the black hole and neutron star sources”.

2. UGC—BSR Research start-up Grant Project title: “Photometric studies of stellar spots in Contact binaries using Kepler Satellite data”.

3. Projects are related to studies of Neutron star X-ray sources using first Indian Astronomy Satellite “AstroSat” funded by ISRO.

4. Studies of third bodies in Binary systems funded by DST-SERB.

5. I also completed a project funded by OU-DST-PURSE-II on the title: Software development to handle and analyze Astrosat satellite data.

Supervision: I have supervising 6 research students for Ph.D. in the department and all of them obtained Doctoral degree in the respective research fields. Right now I have 2 Ph.D students. One of the Ph.D has joined Wyane state university, USA for the Post Doctoral studies in the file of Neutron start binary systems. Presented many talks at international and national level conferences, workshops and seminars. Few of my project students either doing Ph.d or Master's research programme in Europe and in other countries.

Outreach: Participated in discussion on various astronomical topics in TV channels.

I gave a PODCAST interview in Telugu language which is available at

https://www.youtube.com/watch?v=Zw5fS6_d5Gc&t=940s.

I was the Convener for the 36th Astronomical Society of India meeting 2018 organized at Osmania University during February 5-9, 2018. I was also a convener for the Two days workshop for “Exploring binary systems using Space and Ground based Observatories held on Oct 22-23, 2021.

I supervise school and college students during the summer vacation, give guidance for Astronomy related competition etc.