

CONTACT INFORMATION	Steward Observatory, 933 N Cherry Ave, Tucson, AZ 85719 ksen@arizona.edu	+1 520 738 2300 senkoushik1995@gmail.com
RESEARCH INTERESTS	Massive binary and stellar evolution: stellar winds, internal mixing processes, tides, X-ray binaries, stripped-envelope supernovae, gravitational wave progenitors	
EDUCATION	Argelander Institute for Astronomy , Bonn, Germany Ph.D. in Natural Sciences, Astronomy and Astrophysics , September 27 2022 <ul style="list-style-type: none"> • Grade: 1.3/4.0 (<i>Magna cum Laude</i>) • Thesis Topic: <i>Evolution of short-period massive binaries in the Magellanic Clouds</i> • Advisor: Prof. Dr. Norbert Langer Indian Institute of Technology, Kharagpur , West Bengal, India Integrated Bachelors and Masters in Science, Physics , July 2018 <ul style="list-style-type: none"> • GPA: 9.65/10, Institute Silver Medalist • Masters thesis Topic: <i>Modelling and evolution of supernova remnants</i> • Advisor: Prof. Somnath Bharadwaj, Head of Center for Theoretical Studies. • IIT JEE: All India Rank: 4958. 	
STANDARD TESTS	• GRE General : Score - 332/340; <i>Physics</i> : Score - 980/990;	Dec 2017
RESEARCH EXPERIENCE - UNDERGRADUATE	Topic: Laser transmission through fibre at low wavelength (UV) range Laser Spectroscopy Group, May 2018 to July 2018 Max Planck Institute for Quantum Optics, Garching, Germany Supervisor: Thomas Udem; in the group of Prof. T. W. Haensch Topic: Short-term variability in magnetized massive stars: contribution from unstable magnetosonic waves. Astronomy and Astrophysics Division, May 2017 to July 2017 University of Alberta, Edmonton, Canada Supervisor: Rodrigo Fernandez, Assistant Professor Topic: The cooling zones of shocks in the winds of massive stars. Astronomy and Astrophysics Division, May 2016 to July 2016 University Observatory Munich, Ludwig Maximilian University, Munich, Germany Supervisor: Joachim Puls, Professor Topic: Encoding information in the phases of qubits. Physical Sciences Division, December 2014, May 2015 to July 2015 Indian Institute of Science, Education and Research, Kolkata, Kalyani, India Supervisor: Prasanta K. Panigrahi, Director Topic: Chaotic Oscillations of a current carrying coil in a magnetic field. Plasma Physics Division, May 2014 to July 2014 Saha Institute of Nuclear Physics, Kolkata, India Supervisor: A. N. Sekar Iyengar, Senior Professor	
AWARDS	Travel Grants - International <ul style="list-style-type: none"> • APS Distinguished Student (DS) Program 2018 • University of Alberta Research Experience (UARE) Scholarship, Canada 2017 • DAAD WISE Scholarship, Germany 2016 Graduation - IIT Kharagpur 2018 <ul style="list-style-type: none"> • Institute Silver Medal, H.N. Bose Memorial Award, G.B. Mitra Award • Nilanjan Ganguly Memorial Award, Kedarnath Singh Memorial Award 	

Undergraduate National Fellowships - India

- National Initiative on Undergraduate Sciences (NIUS) Fellow 2013-2014
- Inspire Fellow, Dept. of Science and Technology, India 2013-2018

PRESENTATIONS

Invited seminar talks

- Inter-University Centre for Astronomy and Astrophysics -
“Massive Algols as whetstones for binary star evolution towards GW sources.”
Weekly seminar of the Institute - October 26, 2023
- Tata Institute for Fundamental Research - “Observable properties of massive
interacting binaries on the main sequence.” Weekly seminar of the Department
of Astronomy and Astrophysics - October 10, 2023
- Indian Institute of Technology, Kharagpur - “Observable properties of massive
Algol binaries.” Department of Physics - October 3, 2023
- Jagiellonian University, Kraków - “Evolution of short-period massive binary stars
in the Magellanic Clouds.” Astrophysics seminar of the Faculty of Physics,
Astronomy and Applied Computer Science - April 5, 2023
- Institute of Astronomy, Nicolaus Copernicus University, Toruń - “Evolution of
short-period massive binary stars in the Magellanic Clouds.” Seminar of the
Faculty of Physics, Astronomy and Informatics - October 10, 2022

Recent conference talks - full list & some videos recordings here

- e-Rosita Meeting: from stars to Cosmology - Garching, MPE, MPG - “Whispering
in the dark: X-ray faint BHs around OB stars.” Sept 20, 2024
- IAU General Assembly - Div G: Stars and Stellar Physics - Cape Town -
“Observable properties of massive Algols.” Aug 12, 2024
- IAU 389 — Gravitational Wave Astrophysics - Cape Town - “Massive Algols as
whetstones for the progenitors gravitational wave sources.” Aug 6, 2024
- LIAC41: The eventful life of massive star multiples - Liege - “Observable properties
of Algol binaries across the Hertzsprung-Russell diagram.” July 16, 2024
- 3,2,1: Massive Triples, Binaries and Mergers - KU Leuven - “Observable
consequences of interactions in massive main sequence binaries.” July 18, 2023
- EAS Annual meeting - Krakow - “Reverse Algols and hydrogen-rich Wolf-Rayet
stars from massive binary evolution.” July 11, 2023
- The Wolf-Rayet phenomenon in the Universe - Mexico - “Hydrogen-rich Wolf-
Rayet stars on the main sequence from massive binaries.” June 19, 2023

TEACHING EXPERIENCE

1. **Guest Lecturer**, Graduate astronomy program at the University of Arizona
 - Massive binary star evolution Current semester 2025
 - Instructor: Mathieu Renzo, University of Arizona
2. **Guest Lecturer**, Masters course at the Nicolaus Copernicus University
 - Introduction to binary stars Summer semester 2024
 - Instructor: Dorottya Szecsi, Nicolaus Copernicus University in Torun
3. **Tutor**, Masters courses at the University of Bonn
 - Stellar Nucleosynthesis Summer semester 2021
 - Instructor: Norbert Langer, Argelander Institute for Astronomy
 - Stellar Structure and Evolution Winter semester 2020
 - Instructor: Norbert Langer, Argelander Institute for Astronomy
 - Programming in Python Summer semester 2020
 - Instructor: Thomas Erben, Argelander Institute for Astronomy

REFERENCES

1. Prof Dr Norbert Langer - Ph.D. supervisor - Argelander Institute for Astronomy,
University of Bonn - email: nlanger@astro.uni-bonn.de
2. Prof Dr Hugues Sana - collaborator - KU Leuven - email: hugues.sana@kuleuven.be
3. Prof Dr Dorottya Szecsi - postdoctoral supervisor - Institute of Astronomy,
Nicolaus Copernicus University in Torun - email: dorottya@umk.pl
4. Prof Dr Mathieu Renzo - postdoctoral supervisor - Steward Observatory, University
of Arizona - email: mrenzo@arizona.edu