

# Anil Kandel

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Kathmandu, Nepal

## Education

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**University of Delhi**, New Delhi, India 2021–2023

M.Sc. Physics

*Relevant Coursework:* Astrophysics, Observational Astronomy Lab, General Relativity & Cosmology, Complex Systems, String Theory

**St. Xavier's College**, Kathmandu, Nepal 2016–2020

B.Sc. Physics

## Projects

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- **Study of the Maximum Mass of Neutron Stars** Supervisor: Mr. Birendra Prasad Pant, St. Xavier's College, Kathmandu.
- **Photometric Analysis of Eclipsing Binaries (0.1–0.7 day periods)** Supervisors: Prof. H.P. Singh and Prof. T.R. Seshadri, University of Delhi.

## Research Interests

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Dark Energy, Cosmic Inflation, Modified Gravity

## Research Experience

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**Department of Physics and Astrophysics, University of Delhi** Jun–Sep 2023

Research Assistant under *Dr. Debottam Nandi*

- Investigated slow-roll inflationary potentials, focusing on the Starobinsky model and its consistency with Planck constraints on the tensor-to-scalar ratio ( $r \leq 0.03$ ).
- Solved the Mukhanov–Sasaki equation using Bunch–Davies initial conditions to study curvature perturbations.

## Teaching Experience

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- Delivered a 22-hour lecture series on *Introduction to General Relativity* at St. Xavier's College (Nov 2024–Jan 2025), supplemented by invited cosmology talks from Delhi University faculty.
- Joined St. Xavier's College, Kathmandu, as a Physics Faculty Member (May 2025–present).

## Publications / Manuscripts

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- *SSFDE Model: Cosmological Implications and Dynamical System Analysis*, *arXiv:2511.06129 [gr-qc]*

## Academic Activities

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- Attendee, International Conference on Gravitation, Cosmology, Astrophysics, and Space Sciences (ICGCAS - 2025), organized by PICS, Sagara, Sambalpur, Odisha, India.
- Local Coordinator, ICTP Physics Without Frontiers: Holographic Himalaya (2025–present)
- Attendee, ICARD Workshop, IUCAA Centre for Astronomy Research & Development (2024)
- Instructor, Astronomy Winter School, Initiative for Girls in Physics (2022)
- Participant, Kathmandu Astrophysics School (KAS20), University of Melbourne - Online (2020)

## Awards

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Bronze Medal, St. Xavier's Physics Council (SXPC) Undergraduate Physics Olympiad (2017)

## Technical Skills

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Python, Mathematica, Pytearcat (Tensor Algebra), SimpleMC (Cosmological Parameter Estimation), CLASS (Cosmic Linear Anisotropy Solving System for CMB), Cobaya (Code for bayesian analysis).

*GitHub:* [github.com/Anil3227](https://github.com/Anil3227)