

Session Program

12-16 Dec 2022

XXV DAE-BRNS HIGH ENERGY PHYSICS SYMPOSIUM 2022

DAE HEP 2022
HOSTED BY IISER MOHALI
DECEMBER 12TH TO 16TH

TOPICS

- ASTROPARTICLE PHYSICS AND COSMOLOGY
- BEYOND THE STANDARD MODEL
- FORMAL THEORY
- FUTURE EXPERIMENTS AND DETECTOR DEVELOPMENT
- HEAVY IONS AND QCD
- HIGGS PHYSICS
- NEUTRINO PHYSICS
- QUARK AND LEPTON FLAVOUR PHYSICS
- SOCIETAL APPLICATIONS
- TOP QUARK AND EW PHYSICS

Logos: IISER Mohali, TIFR, AMITY, and other participating institutions.

XXV DAE-BRNS High Energy Physics Symposium 2022

WG1-Astroparticle Physics and Cosmology

IISER Mohali, Lecture Hall Complex, IISER Mohali
IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

Monday 12 December

15:00

WG1-Astroparticle Physics and Cosmology: D1-S1 - Parallel - 1

Session |

Location: IISER Mohali, LH5, Lecture Hall Complex, IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

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Convener: Dr Kinjalk Lochan

15:00-15:25

Astrophysical and Cosmological Constraints on the Dark Sector

Speaker

Prof. Jasjeet Bagla

15:30-15:45

Pressure anisotropy effects on surface curvature of the neutron star

Speaker

Harish Chandra Das

15:45-16:00

Exploring millicharged dark matter components from the shadows

Speaker

Lalit Singh Bhandari

16:00-16:15

Reconstruction of late-time cosmology using Principal Component Analysis

Speaker

Mr Ranbir Sharma

16:15-16:30

Machine Learning Frameworks for next-generation of Cosmology Surveys

Speaker

Nikhel Gupta

16:30

17:00

WG1-Astroparticle Physics and Cosmology: D1-S2 - Parallel - 1

Session |

Location: IISER Mohali, LH5, Lecture Hall Complex, IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

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Convener: Dr Pankaj Kushwaha

17:00-17:15

Summer Thunderstorm-Induced Muon Events (TIMES) at GRAPES-3 Experiment: A detailed investigation

Speaker

Dr Pranaba Nayak

17:15-17:30

Small-scale anisotropy in cosmic ray flux observed by GRAPES-3 at TeV energies

Speaker

M. Chakraborty

17:30-17:45

Observational signatures of cosmic string wake from magnetohydrodynamics

Speaker

Soma Sanyal

17:45-18:00 **Cosmic muon momentum spectrum at the earth surface**

Speaker

Pethuraj Sankaranarayanan

18:00-18:15

Young supernovae sprinkling high energy neutrinos and gamma-rays throughout our universe

Speaker

Prantik Sarmah

18:15-18:30 **Equation of state of magnetized proto-quark star**

Speaker

Ms Manisha Kumari

18:30

Tuesday 13 December

11:00

WG1-Astroparticle Physics and Cosmology: D2-S3 - Parallel - 1

Session |

Location: IISER Mohali, LH5, Lecture Hall Complex, IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

Conveners: Kinjalk Lochan, Pankaj Kushwaha

11:00-11:25

IceCube and the future of Astroparticle Physics from the South Pole

Speaker

Manisha Lohan

11:30-11:55

Dark matter density spike at the Galactic Center and indirect detection constraints

Speaker

Divya Sachdeva

12:00-12:15

Estimation of $^{\{32\}}\text{Si}$ and $^{\{32\}}\text{P}$ background rate in CDMS II experiment

Speaker

Mouli Chaudhuri

12:15-12:30

Observable ΔN_{eff} with Dark Matter in Dirac Scotogenic Model

Speaker

Dr Pritam Das

12:30-12:45

Angular resolution and pointing accuracy of the GRAPES-3 experiment obtained by Moon shadow observation

Speaker

Diptiranjana Pattanaik

13:00

15:00

WG1-Astroparticle Physics and Cosmology: D2-S4 - Parallel - 1

Session |

Location: IISER Mohali, LH5, Lecture Hall Complex, IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

Conveners: H K Jassal, Pankaj Kushwaha

15:00-15:15

Probing phase transitions in a pulsar core through the observable effects on pulse profile modulation

Speaker

Biswanath Layek

15:15-15:30

Effect of hyperons on f-mode oscillations in neutron stars: A general relativistic treatment and role of nuclear parameters

Speaker

Bikram Pradhan

15:30-15:45

Dark Matter Phenomenology in an Extended Littlest Seesaw Model and Effects of Primordial Black Hole**Speaker**

Kousik Loho

15:45-16:00

Probing the small-scale physics of warm inflation from primordial black holes**Speaker**

Richa Arya

16:00-16:15

Light Dirac neutrino portal dark matter with observable ΔN_{eff} **Speaker**

Anirban Biswas

16:15-16:30

WIMP and FIMP Dark Matter in Singlet-Triplet Fermionic Model**Speaker**

Abhishek Roy

16:30

Wednesday 14 December

11:00

WG1-Astroparticle Physics and Cosmology: D3-S5 - Parallel - 1

Session |

Location: IISER Mohali, LH5, Lecture Hall Complex, IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

Conveners: Kinjalk Lochan, Pankaj Kushwaha

11:00-11:25

Detection of topological defects in the Universe

Speaker

Soma Sanyal

11:30-11:45

Simulation study of cosmogenic particles and their correlations obtained at ground level

Speaker

Prof. Prashant Shukla

11:45-12:00

Effect of inhomogeneities on the propagation of gravitational waves from binaries of compact objects

Speaker

Shashank Shekhar Pandey

12:00-12:15

Asymmetric Dark matter from scattering

Speaker

deep ghosh

12:15-12:30

New Constraints on the Coupling of Axion-Like-Particles with Photons via Inverse Primakoff Scattering

Speaker

Dr Lakhwinder Singh

13:00

16:00

WG1-Astroparticle Physics and Cosmology: D3-S6 - Parallel - 1

Session |

Location: IISER Mohali, LH5, Lecture Hall Complex, IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

Conveners: Dr Satyajit Jena, Pankaj Kushwaha, Kinjalk Lochan

16:00-16:15

Realizing late-time cosmology in the context of Dynamical Stability Approach

Speaker

Anirban Chatterjee

16:15-16:30

Formation of primordial black holes in the subhorizon k-space of inflation

Speaker

Chittrak Sarkar

16:30-16:45

Neutrinos from captured dark matter annihilation in a galactic population of neutron stars

Speaker

Mr Debajit Bose

16:45-17:00

Boosting through the Darkness

Speaker

Debjyoti Bardhan

17:00-17:15

Looking for the imprints of high scale non-thermal leptogenesis in CMB

Speaker

Dibyendu Nanda

17:15-17:30

Axion and FIMP Dark Matter in a $U(1)$ extension of the Standard Model

Speaker

Sarif Khan

18:00

Thursday 15 December

11:00

WG1-Astroparticle Physics and Cosmology: D4-S7 - Parallel - 1

Session |

Location: IISER Mohali, LH5, Lecture Hall Complex, IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

Conveners: Pankaj Kushwaha, Dr Ranjan Laha, Kinjalk Lochan

11:00-11:15

Cosmic ray diurnal variation over two decades measured by the GRAPES-3 muon telescope

Speaker

M. Zuberi

11:15-11:30

The Sensitivity of C₂H₂F₄ superheated liquid detector for WIMP dark matter search

Speaker

Mr Suraj Ali

11:30-11:45

IceCube and the future of Astroparticle Physics from the South Pole

Speaker

Dr Manisha Lohan

11:45-12:00

Fingerprint of MeV scale Secluded Dark matter at CMB

Speaker

Abhijit Kumar Saha

12:00-12:15

Lyman- α constraints on the primordial black hole dark matter

Speaker

Priyank Parashari

12:15-12:30

Geant4 simulation package for the GRAPES-3 muon telescope

Speaker

Fahim Varsi

13:00

15:00

WG1-Astroparticle Physics and Cosmology: D4-S8 - Parallel - 1

Session |

Location: IISER Mohali, LH5, Lecture Hall Complex, IISER Mohali, Sector 81, Knowledge city, SAS Nagar, Punjab, India

Conveners: Kinjalk Lochan, Dr Ranjan Laha, Pankaj Kushwaha

15:00-15:15

Constraints on light vector gauge boson from GRB observation

Speaker

TANMAY PODDAR

15:15-15:30

10-300 TeV Isotropic Diffuse Gamma-rays with the GRAPES-3 Experiment

Speaker

Mr B.P. Pant

15:30-15:45

Asteroid mass Primordial Black Hole Dark Matter and its Gravitational Wave Signature

Speaker

Dr Arvind Kumar Mishra

15:45-16:00

Halo uncertainties in dark matter capture within celestial objects

Speaker

Sambo Sarkar

16:00-16:15

Falsifying the standard cosmological model

Speaker

Mohamed Rameez

16:15-16:30

Thermal Relaxation of Dark Matter Admixed Neutron Star

Speaker

Ankit Kumar

16:30