

## 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

## *Poster - 2*

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

## Tuesday 13 December

14:00

### Poster - 2: D2

#### Poster Session

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

**Conveners:** Dr Vishal Bhardwaj, Dr Satyajit Jena, Ambresh Shivaji

#### Strange baryons production in Au+Au collisions at $\sqrt{s_{NN}} = 19.6$ GeV from STAR

##### Speaker

Sameer Aslam

#### FPGA based Time Calibration Trigger System for the GRAPES-3 experiment

##### Speaker

Mr A. Jain

#### Poster: Exploring millicharged dark matter components from the shadows

##### Speaker

Lalit Singh Bhandari

#### Exploring the leptonic CP violation in two zero textures

##### Speaker

Ms Jayati Prabhakar

#### A study of elliptic flow in a deep learning framework

##### Speaker

Neelkamal Mallick

#### Exploring the specific shear viscosity $(\eta/s)$ of quark-gluon plasma using the high $p_{\perp}$ observables

##### Speaker

Bithika Karmakar

#### Sensitivity study of $B \rightarrow \pi \ell^+ \ell^-$ decays at the Belle II experiment

##### Speaker

RISHABH MEHTA

#### Geometric Quantization of a Constrained System

##### Speaker

Vipul Kumar Pandey

#### Higgs boson-like high mass resonance search in the $H \rightarrow ZZ \rightarrow 2l2q$ decay channel at $\sqrt{s} = 13$ TeV using CMS experiment data

##### Speaker

Aloke Kumar Das

#### Search for a vector-like quark $T' \rightarrow tH$ in the diphoton decay mode of the Higgs boson in proton-proton collisions at $\sqrt{s} = 13$ TeV

##### Speaker

Prafulla Saha

**THE 3 FOLDS 4-DIMENSIONAL UNIVERSE**

**Speaker**  
Yogesh Chavan

**Type II Dirac Seesaw with Observable  $\Delta N_{\text{eff}}$  in the light of W-mass Anomaly**

**Speaker**  
SATYABRATA MAHAPATRA

**Retrieving Inverse Seesaw parameter space for Dirac Phase Leptogenesis**

**Speaker**  
Ananya Mukherjee

**Search for the decay  $B^0 \rightarrow \gamma \gamma$  at  $\Upsilon(4S)$  resonance**

**Speaker**  
Mr Dibyajyoti Kalita

**Impact of finite volume on thermodynamic properties of quark matter within Polyakov quark meson model**

**Speaker**  
Nisha Chahal

**Quasi-characters in  $\widehat{\mathfrak{su}}(2)$  current algebra at fractional levels**

**Speaker**  
Sachin Grover

**Impact of Effective Spectral function and Transverse Enhancement on Extraction of Neutrino Oscillation Parameters in NO $\nu$ A Experiment**

**Speaker**  
Ms Paramita Deka

**Shock formation in magnetized wakes of cosmic strings.**

**Speaker**  
Mr Soumen Nayak

**Emergent new symmetry from the Higgs shadow**

**Speaker**  
anjan barik

**Olsson.wl : a Mathematica package for the computation of linear transformations of multivariable hypergeometric functions**

**Speaker**  
Souvik Bera

**Search for the decay  $B \rightarrow D^* \eta \pi$  in Belle (II).**

**Speaker**  
Ms VISMAYA V S

**The Inflaton in Quantum Impedance Networks of Higgs Mode Dynamics**

**Speaker**  
peter cameron

**Cut-Based Photon ID Tuning and Comparison Studies**

**Speaker**  
Shubham Dutta

**Optimisation of Operating High Voltage of large area Resistive Plate Chambers for the ICAL experiment**

**Speakers**  
Gobinda Majumder, Pethuraj Sankaranarayanan

**Elliptic flow of strange hadrons in Au+Au collisions at  $E_{\text{lab}} = 35\text{--}A$  GeV using the PHSD model**

**Speaker**  
Mr Towseef Ahmad Bhat

**Current Status and Future Outlook of Neutrinoless Double Beta Decay Searches**

**Speaker**  
Ms Lisha Lisha

**Study of traversable wormhole in  $f(R)$  gravity**

**Speaker**  
Mr PARTHA PRATIM NATH

**Study of the  $B^0 \rightarrow \gamma\gamma$  decay at Belle and Belle II**

**Speaker**  
Ms Shubhangi Krishan Maurya

**Dissociation baryonic chemical potential of the QGP at momentum anisotropy with Quasi-Particle approach**

**Speaker**  
Siddhartha Solanki

**Charged pion energy reconstruction in HGICAL TB prototype using graph neural networks**

**Speaker**  
Alpana Alpana

**Baryon Asymmetry and Corrections to Scaling Neutrino Mass Matrix in Type-I+II Seesaw Model under  $A_4$  Modular Invariance**

**Speaker**  
Monal Kashav

**Unruh quantum Otto engine in the presence of a reflecting boundary**

**Speaker**  
Arnab Mukherjee

**Nonlinear Constraints Abelianization of a Prototypical Second-Class System using BFFT method**

**Speaker**  
Dr Vipul Kumar Pandey

**Measurement of leading charged-particle jet properties in p-Pb collisions at  $\sqrt{s_{\text{NN}}} = 5.02$  TeV with ALICE**

**Speaker**  
Prottoy Das

**Probing  $B \rightarrow K^* \gamma$  decays at Belle II experiment**

**Speaker**  
Rahul Tiwary

**Comparitive study of multiplicity fluctuations and evidences of intermittency in 14.5A GeV/c 28Si-AgBr collisions**

**Speaker**  
Anju Sharma

**Search for glueball candidates via KK decay channel in pp collisions with ALICE at the LHC**

**Speaker**  
Dukhishyam Mallick

**Evidence for Boundary Quantum Gravity: Aspects of a Bulk Geometric Torsion**

**Speaker**  
Mr Rohit K. Gupta

**Light Higgs searches at the CMS detector**

**Speaker**  
Anirban Bala

**Probing non-standard neutrino interactions with a light boson from next galactic and diffuse supernova neutrinos**

**Speaker**  
Dr Mehedi Masud

**Flavour bounds on the flavon of a minimal  $Z_2 \times Z_N$  symmetry**

**Speaker**  
NEELAM SINGH Research Scholar, Physics, IIT(BHU)

**Magnetized Quark Gluon Plasma Evolution**

**Speaker**  
Mr Gaurang Kuksal

**Renormalization-group and  $\epsilon$ -improved Higgs to two gluons decay rate**

**Speaker**  
VARTIKA SINGH Res. Scholar, Physics, IIT(BHU)

**AI-based models in INO-ICAL: An overview of applications and studies**

**Speaker**  
Lakshmi Murgod

**Angular Dependence of Cosmic Muon Flux - Experimental Measurement and Simulation**

**Speaker**  
Souvik Chattopadhyay

**Exactly solvable model of a damped harmonic oscillator affected by magnetic field in a time dependent noncommutative space**

**Speaker**  
MANJARI DUTTA

**Analysing the S-wave charmonium decays of  $B_c$  meson****Speaker**

Shantanu Sahoo

**Impact of Landau quantization on Chandrasekhar limit****Speaker**

SUMIT KUMAR MAHESHWARI

**Probing the role of mutual information in the Page curve****Speaker**

Mr Ashis Saha

**Entropic force and real-time dynamics of holographic quarkonium in a magnetic field****Speaker**

Siddhi Swarupa Jena

**Estimation of diffusion coefficients of heavy quarks under Gribov-Zwanziger action.****Speaker**

Sadaf Madni

**A minimal dark matter model with vector like fermions****Speaker**

Najimuddin Khan

**Parameter space for low-energy CP phases and low scale leptogenesis within Inverse seesaw model.****Speaker**

Bikash Thapa

**EXPLORING LEPTONIC CP-ODD WEAK BASIS INVARIANTS IN HYBRID TEXTURES OF NEUTRINO MASS MATRIX****Speaker**

Dr Madan Singh

**Multi-messenger study of TXS 0506+056 blazar****Speaker**

Sunanda .

**Cornering the SMEFT interactions of Higgs through Higgs-Photon production at the LHC****Speaker**

Tisa Biswas

**Effective Hamiltonian for a quark-antiquark system in heavy-flavor QCD****Speaker**

Jai More

**NMSSM Higgs boson at the LHC****Speaker**

Ms Surabhi Gupta

### Calibration of electrons or photons reconstructed by the Level 1 Trigger of CMS for Run3

**Speaker**

Sweta Baradia

### WIMP and Self Interacting FIMP dark matter in the context of Singlet Doublet Model

**Speaker**

sudipta show

### Monojet signatures to study standard model extensions including non-thermal dark matter candidates

**Speaker**

Amandeep Kaur Kalsi

### Discussing lepton flavor violation(LFV) in $B \rightarrow K$ tensor Decays

**Speaker**

Dr Ria sain

### Decoding the Charged Lepton Yukawa from the Higgs measurements

**Speaker**

Dr Ratan Sarkar

### Strange and Non-strange Sea Quark-gluon Effects for Pions

**Speakers**

Ms Preeti bhall, Mrs Sherel jagdev

### A new method to determine muon multiplicity at the GRAPES-3 experiment

**Speaker**

Ronald Scaria

### Neutrino masses from the departure of Tribimaximal neutrino mixing matrix, CP Violation and non-zero $\theta_{13}$

**Speaker**

Animesh Barman

### Hawking radiation as quantum mechanical reflection

**Speaker**

Pabitra Tripathy

### Status of mesons in the hidden strange sector

**Speaker**

Dr Tanvi Bhavsar

### Study of Photon energy bias using $\pi^0 \rightarrow \gamma\gamma$ decays from $D^{*+} \rightarrow D^0(\rightarrow K^-\pi^+\pi^0)\pi^+$ at Belle II.

**Speaker**

Ms Chanchal Sharma

### Measurement of PYTHIA8-based effective cross-section using underlying event data

**Speaker**

Ramandeep Kumar

### **Utmost Precision on 2-3 Oscillation Parameters using the synergy among DUNE and T2HK**

**Speaker**  
Ritam Kundu

### **W mass anomaly from CDF-II and neutrino phenomenology in minimal type-III seesaw using $T^{\prime}$ modular symmetry**

**Speaker**  
Priya Mishra

### **Estimation of Bjorken initial energy density in p-p collisions**

**Speaker**  
Mohammad Asif Bhat

### **Investigating the effect of new physics on $\Upsilon$ and $\psi$ leptonic decays**

**Speaker**  
Dhiren Panda

### **Tachyonic Potential with Power Law and Polynomial Function for Accelerated Expansion of the Universe**

**Speaker**  
Sovan Ghosh

### **S-wave charm and bottom baryons in HQET**

**Speaker**  
Kundan Kumar

### **Analysis for Non Thermal Phase Transitions in Relativistic Heavy Ion Collisions**

**Speaker**  
Dr Mir Hashim Rasool

### **Neutrino Mass Ordering with Atmospheric, long baseline and reactor experiments**

**Speaker**  
Deepak Raikwal

### **Seesaw dominance effects for neutrinoless double beta decay in left-right symmetric lens**

**Speaker**  
Mr Vivek Banerjee

### **Slow-roll inflaton potential through Kahler moduli stabilizations with two non-perturbative corrections in type IIB/F-theory**

**Speaker**  
Mr Abhijit Let

### **Effect of Magnetic Field on 1P states of the Heavy Quarkonia**

**Speaker**  
Mr Manohar Lal

### **Effective suppression of r-modes within hyperonic stars**

**Speaker**  
Dr V. Srekanth

### **Study of the lepton flavour violating decays $B_s$ to electron+muon**



<p><b>Speaker</b> Sanjeev Kumar</p>
<p><b>Correlation of streamer pulse with contaminants in the RPC detector.</b></p> <p><b>Speaker</b> Umesh L</p>
<p><b>Measurement of Magnetic field at mini-ICAL and comparison with the MAGNET simulation</b></p> <p><b>Speaker</b> Ms Honey Khindri</p>
<p><b>Sensitivity of nuclear density profiles to global observables in O-O collisions at the Large Hadron Collider using AMPT Model</b></p> <p><b>Speaker</b> Debadatta Behera</p>
<p><b>MEASUREMENTS OF THE RATIO OF PARTIAL WIDTHS <math>\Gamma(D_{s}^{*+}) \rightarrow D_{s}^{+}\pi^{0} / \Gamma(D_{s}^{*+}) \rightarrow D_{s}^{+}\gamma</math></b></p> <p><b>Speaker</b> Latika Aggarwal</p>
<p><b>Cogenesis of visible and dark sector asymmetry in a minimal seesaw framework</b></p> <p><b>Speaker</b> Lekhika Malhotra</p>
<p><b>Addressing flavor anomalies, <math>(g-2)_{\mu}</math>, neutrino mass and matter-antimatter asymmetry of the universe within SO(10) GUT with a scalar leptoquark and scalar triplets</b></p> <p><b>Speaker</b> PRATIK ADARSH</p>
<p><b>A POSSIBLE SOLUTION TO THE HUBBLE TENSION FROM QUANTUM GRAVITY</b></p> <p><b>Speaker</b> Anupama B</p>
<p><b>Volume of a rotating black hole in 2+1 dimensions</b></p> <p><b>Speaker</b> Mr Suraj Maurya</p>
<p><b>QCD corrections to <math>H \rightarrow e^{+} e^{-} \mu^{+} \mu^{-}</math></b></p> <p><b>Speaker</b> Mandeep Kaur</p>
<p><b>Medium modification of dijets at LHC energies</b></p> <p><b>Speaker</b> Mr Vipul Pant</p>
<p><b>Probing Non-classicality of Primordial Gravitational Waves and Magnetic Field Through Quantum Poincare Sphere</b></p> <p><b>Speaker</b> Sourav Pal</p>
<p><b>Phases of complex SYK from Euclidean wormholes</b></p>

<p><b>Speaker</b> Mr Hemant Rathi</p>
<p><b>Search for Wrong-Sign <math>D^{\{0\}} \rightarrow K^{\{+\}} \pi^{\{-\}} \pi^{\{0\}}</math> decay at Belle II.</b></p> <p><b>Speaker</b> Ms Chanchal Sharma</p>
<p><b>Study on the neutrino masses and mixings, baryogenesis and effects of keV-scale sterile neutrino as dark matter</b></p> <p><b>Speaker</b> Soram Robertson Singh</p>
<p><b>Background study in <math>\bar{\nu}_\mu</math>-A DIS scattering in MINER<math>\nu</math>A Experiment</b></p> <p><b>Speaker</b> Sayeed Akhter</p>
<p><b>Theoretical Studies on <math>d(\vec{\gamma}, \vec{p})n</math> at Astrophysical Energies</b></p> <p><b>Speaker</b> Kusuma M</p>
<p><b>Eta meson couplings with low-lying nucleon resonances</b></p> <p><b>Speaker</b> Janardan Singh</p>
<p><b>Probing the effect of hadron cascade-time on particle production and elliptic flow (<math>v_2</math>) in Xe+Xe collisions at <math>\sqrt{s_{\text{NN}}} = 5.44</math> TeV using AMPT model</b></p> <p><b>Speaker</b> Girija Sankar Pradhan</p>
<p><b>Magnetic reconnection in cosmic string wakes</b></p> <p><b>Speaker</b> Mr DILIP KUMAR</p>
<p><b>Identified hadron production at mid-rapidity in Au+Au collisions at <math>\sqrt{s_{\text{NN}}} = 54.4</math> GeV at STAR</b></p> <p><b>Speaker</b> Mr Krishan Gopal</p>
<p><b>Probing high scale seesaw and PBH generated dark matter via gravitational waves with multiple tilts</b></p> <p><b>Speaker</b> Suruj Jyoti Das</p>
<p><b>Two-particle femtoscopic correlation measurements of <math>K^0_S</math> and <math>\Lambda/\bar{\Lambda}</math> particles in PbPb collisions with CMS detector</b></p> <p><b>Speaker</b> Raghunath Pradhan</p>
<p><b>Horizon degree of freedom induced from bulk</b></p> <p><b>Speaker</b> Ayan Chatterjee</p>
<p><b>Develop and study the Bakelite RPCs using linseed oil coating</b></p>

**Speaker**

Dr Raveendrababu Karnam

**Characterization of proto-type silicon sensor for CMS detector**

**Speaker**

Anusree Vijay

**Jet and missing transverse energy performance at CMS High Level Trigger**

**Speaker**

Mr Diwakar Vats

15:00