

**Session Program**

**6-10 Jun 2022**

**PPC 2022: XV International Conference on  
Interconnections between Particle Physics  
and Cosmology**

***Parallel***

# Monday 6 June

15:30

## Parallel: BSM - Guller (BH 130)

**Session** | **Location:** Guller (BH 130) | **Convener:** Anil Thapa

15:30–15:45

### Baryon Number Violation in Neutron Stars

#### Speaker

Mohammadreza Zakeri

15:45–16:00

### Observable proton decay in Flipped SU(5)

#### Speaker

Maria Mehmood

16:00–16:15

### Probing the $\nu_R$ -philic $Z'$ at DUNE near detectors

#### Speaker

Garv Chauhan

16:15–16:30

### $W$ boson mass, dark matter and $(g-2)_\ell$ in the ScotoZee neutrino mass model

#### Speaker

Ritu Dcruz

16:30–16:45

### Correlating $W$ -Boson Mass Shift with Muon $(g-2)$ Anomaly in the 2HDM

#### Speaker

Vishnu Padmanabhan Kovilakam

16:45–17:00

### Upper bound on the smuon mass from vacuum stability in the light of muon $g-2$ anomaly

#### Speaker

So Chigusa

17:00–17:15

### Muon $g-2$ , Neutralino Dark Matter and Stau NLSP

#### Speaker

Amit Tiwari

17:15–17:30

### Fermion masses and mixings in 3HDM with $S_3$ flavor symmetry

#### Speaker

Shiyuan Xu

17:30–18:00

### Novel Manifestations of Primordial Black Holes

#### Speaker

Volodymyr Takhistov

18:00

15:30

**Parallel: Collider - Zimring (BH 150)****Session** | **Location:** Zimring (BH 150) | **Convener:** David Tucker-Smith**15:30-15:45** **Toponium at the LHC****Speaker**

Ya-Juan Zheng

**15:45-16:00** **Cp Violating Top Yukawa at the Multi TeV Muon Collider****Speaker**

Morgan Cassidy

**16:00-16:15****Machine-Learning quantum entanglement with top quark pair production at the LHC****Speaker**

Zhongtian Dong

**16:15-16:30** **Heavy Neutral Lepton Searches at the Electron-Ion Collider****Speaker**

Keping Xie

**16:30-16:45** **Quarkofobic  $W'$  for LHC searches****Speaker**

Jose Ruiz

**16:45-17:00** **Searches for new physics in the final state  $B\text{-}\tau_{\text{h-p}}T^{\text{miss}}$** **Speaker**

Tomas Atehortua Garces

**17:00-17:15** **Multi-track Displaced Vertices at B-Factories****Speaker**

Albany Blackburn

**17:15-17:30** **Recent results from Belle II****Speaker**

Jim Cochran

**17:30-17:45****Muon  $g-2$  and the B-physics anomalies in RPV Supersymmetry and the discovery prospect at LHC****Speaker**

Fang Xu

**17:45-18:00** **Probing dark sectors with proton bremsstrahlung****Speaker**

Saeid Foroughi-Abari

18:00

15:30

**Parallel: Cosmology I - Ling (BH 160)****Session** | **Location:** Ling (BH 160) | **Convener:** Arnab Dasgupta**15:30-15:45** **Beyond Fisher Forecasting for Cosmology**

**Speaker**

Joseph Ryan

15:45–16:00

**Revisiting an Early Dark Energy model and the Hubble Tension in a non-flat Universe****Speaker**

Jordan Stevens

16:00–16:15

**Can Thermal Friction Thaw the Hubble Tension?****Speaker**

Kim Berghaus

16:15–16:30

**A Hubble parameter estimate  $H_0 = (73.37 \pm 0.54)$  km/s/Mpc from the late-time Universe and the BAO****Speaker**

Maurice van putten

16:30–16:45

**The impact of relative baryon-CDM perturbations on the evolution of Large-Scale Structures****Speaker**

Hasti Khoraminezhad

16:45–17:00

**Finding Evidence for Inflation and the Origin of Galactic Magnetic Fields with CMB Surveys****Speaker**

Sayan Mandal

17:00–17:15

**Cosmological collider signatures of massive gauge bosons****Speaker**

Moinul Rahat

17:15–17:30

**Effects of a Hidden Sector On the Matter Power Spectrum****Speaker**

Himanish Ganjoo

17:30–17:45

**What does cosmology tell us about the mass of thermal-relic dark matter?****Speaker**

Rui An

17:45–18:00

**A bound on the unparticle-photon cross section from the CMB temperature****Speaker**

Maryam Aghaei Abchouyeh

18:00

15:30

**Parallel: Dark Matter I - McGinnis (BH 210)****Session** | **Location:** McGinnis (BH 210) | **Convener:** Debasish Borah

15:30–15:45

**Impact of Sommerfeld Effect and Bound State Formation in Simplified t-Channel Dark Matter Models****Speaker**

Mathias Becker

**Location**

McGinnis (BH 210)

15:45–16:00

**The Light Dark Matter eXperiment, LDMX****Speaker**

Robert Group

**Location**

McGinnis (BH 210)

16:00–16:15

**Dark matter studies with the PADME experiment****Speaker**

Andre Frankenthal

**Location**

16:15–16:30

**Maximizing Direct Detection with HYPER Dark Matter****Speaker**

Robert McGehee

**Location**

McGinnis (BH 210)

16:30–16:45

**The SABRE South Experiment at the Stawell Underground Physics Laboratory****Speaker**

Madeleine Zurowski

**Location**

Virtual

16:45–17:00

**Optimal Pair-finding For Flow Mapping in Liquid Xenon Time Projection Chambers****Speaker**

Jacob McLaughlin

**Location**

McGinnis (BH 210)

17:00–17:15

**Analytic Approximations for the Velocity Suppression of Dark Matter Capture****Speaker**

Jillian Paulin

**Location**

McGinnis (BH 210)

17:15–17:30

**Experimental signatures of a new dark matter WIMP**

**Speaker**

Roland Allen

**Location**

McGinnis (BH 210)

17:30–17:45 **Kaluza-Klein Portal Matter**

**Speaker**

GEORGE WOJCIK

**Location**

McGinnis (BH 210)

17:45–18:00 **Polarized solitons in higher-spin dark matter**

**Speaker**

Mudit Jain

**Location**

McGinnis (BH 210)

18:00

## Tuesday 7 June

13:30

### Parallel: Dark Matter II - McGinnis (BH 210)

**Session** | **Location:** McGinnis (BH 210) | **Convener:** Peizhi Du

13:30–13:45

#### Phenomenology of the Dark Matter sector in the Two Higgs Doublet Model with Complex Scalar Singlet extension

**Speaker**

Juhi Dutta

**Location**

Virtual

13:45–14:00

#### Acausality in Superfluid Dark Matter and MOND-like Theories

**Speaker**

Neil Shah

**Location**

McGinnis (BH 210)

14:00–14:15

#### Exploring Fundamental Physics with Atmospheric Collider

**Speaker**

Volodymyr Takhistov

**Location**

McGinnis (BH 210)

14:15–14:30

#### On the construction of theories of $Sp(4)$ dark matter

**Speaker**

Seán Mee

**Location**

McGinnis (BH 210)

14:30–14:45

#### New production mechanism for keV neutrino dark matter

**Speaker**

Carlos Jaramillo

**Location**

McGinnis (BH 210)

14:45–15:00

#### Two-Component Dark Matter (Review)

**Speaker**

Ali Alnafisah

**Location**

McGinnis (BH 210)

15:00

13:30

### Parallel: Gravitational Waves - Zimring (BH 150)

**Session** | **Location:** Zimring (BH 150) | **Convener:** Vincent Rodgers

13:30–13:45

#### Detecting High-Frequency Gravitational Waves with Microwave Cavities

**Speaker**

Jan Schütte-Engel

13:45-14:00

**Astrometric Gravitational-Wave Detection via Stellar Interferometry**

**Speaker**

Dr Michael A. Fedderke

14:00-14:15

**Traces of a Heavy Field in Gravitational Waves**

**Speaker**

Dr Keisuke Inomata

14:15-14:30

**Revisiting gravitational wave background from primordial black holes**

**Speaker**

Heling Deng

14:30-14:45

**Gravitational Waves from Early Universe Turbulent Sources at the QCD Scale**

**Speaker**

Emma Clarke

14:45-15:00

**Forecasting detections of gravitational-wave tails from LIGO data**

**Speaker**

Matthew Carney

15:00

13:30

**Parallel: Neutrino - Ling (BH 160)**

**Session** | **Location:** Ling (BH 160) | **Convener:** Prudhvi Bhattiprolu

13:30-13:45

**The Radio Neutrino Observatory - Greenland (RNO-G) Experiment**

**Speaker**

Cosmin Deaconu

13:45-14:00

**Memory-triggered supernova neutrino detection**

**Speaker**

Mainak Mukhopadhyay

14:00-14:15

**Hidden-Sector Neutrinos and Freeze-In Leptogenesis**

**Speaker**

Brian Shuve

14:15-14:30

**Impact of neutrino effective NSSI on sterile neutrino dark matter production in the early universe**

**Speaker**

Ms Cristina Benso

14:30-14:45

**Neutrino echoes as a probe of secret neutrino interactions**

**Speaker**

Jose Carpio

14:45-15:00

**The dark side of neutrinos**

**Speaker**

Shreyashi Chakdar

15:00



13:30

## Parallel: Nuclear - Guller (BH 130)

**Session** | **Location:** Guller (BH 130) | **Convener:** Robert Group

13:30-14:00

### Inelastic deexcitation of the Hoyle state

**Speaker**

Lee Sobotka

14:00-14:15

### New Results from the Majorana Demonstrator

**Speaker**

In Wook Kim

14:15-14:30

### Search for neutrinoless double-beta decays in Ge-76 in the LEGEND experiment

**Speaker**

Valentina Biancacci

14:30-14:45

### Overview of nEXO neutrinoless double beta decay experiment

**Speaker**

Prakash Gautam

14:45-15:00

### The Neutron Electric Dipole Moment Experiment at Oak Ridge National

**Speaker**

Cameron Blake Erickson

15:00

15:30

## Parallel: Axions - Guller (BH 130)

**Session** | **Location:** Guller (BH 130) | **Convener:** Kim Berghaus

15:30-15:45

### T-RAX: Transversely Resonant Axion eXperiment

**Speaker**

Chang Lee

15:45-16:00

### Altered Axion Abundance from a Dynamical Peccei-Quinn Scale

**Speaker**

Itamar J. Allali

16:00-16:15

### High-quality axions in solutions to the $\mu$ problem

**Speaker**

Prudhvi Bhattiprolu

16:15-16:30

### Searching for Ultra-light Bosons with Stellar Tidal Disruption Events

**Speaker**

Peizhi Du

16:30-16:45

### Gegenschein signal from an inhomogeneous axion dark matter distribution

**Speaker**

Takuya Okawa

16:45

15:30

## Parallel: Cosmology II - Ling (BH 160)

**Session** | **Location:** Ling (BH 160) | **Convener:** Maurice Van Putten

15:30-15:45

### Tachyon-Dominated Cosmology: Status Update

**Speaker**

Prof. Ian Redmount

15:45-16:00

### Linking early universe transient CP violation and the electron Electric Dipole Moment

**Speaker**

Urjit Yajnik

16:00-16:15

### Neff constraint on portal interaction with hidden sectors

**Speaker**

Pranjal Ralegankar

16:15-16:30

### Freeze-in baryogenesis via dark-matter oscillations

**Speaker**

David Tucker-Smith

16:30-16:45

### Gravitational Wave Pathway for Testable Leptogenesis

**Speaker**

Arnab Dasgupta

16:45

15:30

## Parallel: Dark Matter III - McGinnis (BH 210)

**Session** | **Location:** McGinnis (BH 210) | **Convener:** Robert McGehee

15:30-15:45

### Probing Miracle-less WIMP Dark Matter via Gravitational Waves Spectral Shapes

**Speaker**

Dr Debasish Borah

15:45-16:00

### Detecting Dark Matter around Black Holes with Gravitational Waves

**Speaker**

Niklas Becker

16:00-16:15

### Scattering Amplitudes and Unitarity for Gravitationally Mediated Dark Matter in Extra Dimensions

**Speaker**

Kirtimaan Mohan

16:15-16:30

### Vector Boson Dark Matter From Trinification

**Speaker**

Anil Thapa

16:30-16:45

### Stasis in an Expanding Universe: A Recipe for Stable Mixed-Component Cosmological Eras

**Speaker**

Brooks Thomas

16:45

15:30

## Parallel: Gravity - Zimring (BH 150)

**Session** | **Location:** Zimring (BH 150) | **Convener:** Jim Mertens

15:30-15:45

### Projective Gauge Theory and Thomas-Whitehead Gravity

**Speaker**

Vincent Rodgers

15:45-16:00

### Projective Invariance as the Foundational Principle Beneath Dark Energy and Inflation

**Speaker**

Kory Stiffler

16:00-16:15

### Inflation from Dynamical Projective Connections

**Speaker**

Catherine Whiting

16:15-16:30

### Projective Geometry, Dark Matter Halos, and Supermassive Black Holes

**Speaker**

Tyler Grover

16:30-16:45

### Generative Adversarial Networks for Approximating the Chameleon Scalar Field

**Speaker**

William Charles

16:45