

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 ν_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 $B \rightarrow \tau h p_T^{\text{miss}}$** **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 μ 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