Session Program

2–8 Nov 2025

42nd International Symposium on Lattice Field Theory (Lattice 2025)

Theoretical developments and applications beyond Standard Model

TIFR Mumbai, Homi Bhabha Auditorium
Tata Institute of Fundamental Research, 1, Homi Bhabha Road, Navy Nagar, Colaba, Mumbai, India. Pin - 400 005

Monday 3 November

14:30

Theoretical developments and applications beyond Standard Model

Session | **Location:** Homi Bhabha Auditorium Annex | **Convener:** Hidenori Fukaya

14:30–14:50

The Axial Charge in Hilbert Space and Their Role in Chiral Gauge Theories

Speaker
Tatsuya Yamaoka

14:50–15:10

Symmetric mass generation and the Nielsen-Ninomiya theorem

Speaker
Maarten Golterman

15:10–15:30

Lattice chiral gauge theory, U (1) symmetries, and absence of a strong CP problem

Speaker
Srimoyee Sen

15:30–15:50

A new approach to chiral gauge theory on the lattice

Speaker
Latham Boyle

15:50–16:10

A Gravitational Theory on the Lattice

Speaker
Vatsalya Vaibhav

16:10

16:40

Theoretical developments and applications beyond Standard Model

Session | **Location:** Homi Bhabha Auditorium Annex | **Convener:** Fabian Zierler

16:40–17:00

Impact of SUSY on the dynamical emergence of the spacetime in the type IIB matrix model with the Lorentz symmetry "gauge fixed"

Speaker
Takehiro Azuma

17:00–17:20

Lattice Studies of Two-Dimensional Maximally Supersymmetric Yang–Mills Theory for Tests of Gauge-Gravity Duality

Speaker
BANA SINGH

17:20–17:40

Dark pion scattering and vector resonance in Sp(4) gauge theory

Speaker
JONG-WAN LEE

17:40–18:00

The axion-photon coupling from lattice QCD

Speaker
José Javier Hernández Hernández

18:00–18:20

Holography on the lattice: Evidence from 3D supersymmetric Yang--Mills theory

Speaker
Anosh Joseph

18:20

Tuesday 4 November

14:50

Theoretical developments and applications beyond Standard Model

Session | **Location:** Homi Bhabha Auditorium Annex | **Convener:** Dipankar Chakrabarti

14:50–15:10

Conserved non-singlet charges for staggered fermion Hamiltonian in 3+1 dimensions

Speaker
Tetsuya Onogi

15:10–15:30 **Generalization of lattice Dirac operator index**

Speaker
Hidenori Fukaya

15:30–15:50

How to formulate the $\mathbb{Z}_8$ topological invariant of Majorana fermion on the lattice

Speaker
Sho Araki

15:50–16:10 **Spin-taste representation of Karsten-Wilczek fermions**

Speaker
Johannes Heinrich Weber

16:10

16:40

Theoretical developments and applications beyond Standard Model

Session | **Location:** Homi Bhabha Auditorium Annex | **Convener:** Srimoyee Sen

16:40–17:00

Generalizing deconfined criticality to 3d N-flavor $SU(2)$ quantum chromodynamics on the fuzzy sphere

Speaker
Emilie Huffman

17:00–17:20 **Critical scaling in the N=1 Thirring Model in (2+1)d**

Speaker
Simon Hands

17:20–17:40

Eigenstate Thermalization in 1+1-Dimensional SU(2) Lattice Gauge Theory Coupled with Dynamical Fermions

Speaker
Indrakshi Raychowdhury

17:40–18:00

Thermal SU(2) gauge theory for the pseudogap and origin of cuprate superconductivity

Speaker
Harshit Pandey

18:00

Wednesday 5 November

09:00

Theoretical developments and applications beyond Standard Model

Session | **Location:** Homi Bhabha Auditorium Annex | **Convener:** Anosh Joseph

09:00–09:20

Tensor renormalization group approach to critical phenomena via twisted partition functions

Speaker
Shinichiro Akiyama

09:20–09:40

Tensor Network approach to Entanglement Entropy and Critical Point in (1+1)D Real Scalar phi^4 Theory

Speaker
Mr Takahiro Hayazaki

09:40–10:00

Analysis of Finite Density 3d Complex Scalar Theory by MDTRG

Speaker
Hayato Aizawa

10:00–10:20

The study of multi-particle states with the tensor renormalization group method

Speaker
Fathiyya Izzatun Az Zahra

10:20

Thursday 6 November

14:30

Theoretical developments and applications beyond Standard Model

Session | **Location:** Homi Bhabha Auditorium Annex | **Convener:** Biagio Lucini

14:30–14:50 **Glue Condensate, Quark Condensate and Dirac Spectral Density**

Speaker
Ivan Horvath

14:50–15:10
Topology and Banks-Casher relation using Minimally Doubled Fermions

Speaker
Abhijeet Kishore

15:10–15:30 **Finite-temperature Sp(4) Yang-Mills theory: towards the continuum**

Speaker
Fabian Zierler

15:30–15:50 **Moment problems and spectral functions**

Speaker
Ryan Abbott

15:50–16:10
Non-perturbative renormalization of the energy momentum tensor in the 2d O(3) nonlinear sigma model

Speaker
Mika Lauk

16:10–16:30 **Critical Phenomena on Bethe Lattice**

Speaker
Saswato Sen

16:30

Friday 7 November

14:30

Theoretical developments and applications beyond Standard Model

Session | **Location:** Homi Bhabha Auditorium Annex | **Convener:** Marcello Dalmonte

14:30–14:50

Generalizing the SU(3) loop-string-hadron formalism to multidimensional space

Speaker
Jesse Stryker

14:50–15:10

Interplay of Gauss Law and the fermion sign problem in quantum link models with dynamical matter

Speaker
PALLABI DEY

15:10–15:30

Confined and Deconfined Phases of Qubit Regularized Gauge Theories

Speaker
Prof. Shailesh Chandrasekharan

15:30–15:50

A novel Hamiltonian formulation of $1+1$ dimensional ϕ^4 theory in Daubechies Wavelet Basis

Speaker
Mrinmoy Basak

15:50–16:10 **Lattice Field Theory for a Network of Real Neurons**

Speaker
Simone Franchini

16:10

16:40

Theoretical developments and applications beyond Standard Model

Session | **Location:** Homi Bhabha Auditorium Annex | **Convener:** Navdeep Dhindsa

16:40–17:00

Symplectic Quantization: Disclosing the Deterministic Framework Behind Quantum Mechanics

Speaker
Martina Giachello

17:00–17:20

Symplectic Quantization : Disclosing the Deterministic Framework Behind Quantum Field Theory}

Speaker
Francesco Scardino

17:20–17:40

A novel framework for spectral density reconstruction via quadrature-based Laplace inversion

Speaker
Demetrianos Gavriel

17:40–18:00

Discretization effects of gradient flows in QCD-like theories on the lattice

Speaker
Pietro Butti

18:00–18:20

Probing Loop Dynamics in 2+1-Dimensional SU(2) Lattice Gauge Theory via GPU-Accelerated Exact Diagonalization

Speaker
Ms Aahiri Naskar

18:20