

**Program**

**Feb 7 - 12, 2022**

## **International Meeting on EFFECTIVE PATHWAYS TO NEW PHYSICS (IMEPNP)**

Institute of Physics, Bhubaneswar  
Sachivalaya Marg, Bhubaneswar - 751005, India.

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# Mon, February 7

2:00 PM **Mon, February 7**

2:00 – 7:30 PM

## Monday Afternoon Session

Session | Convener: DILIP KUMAR GHOSH (IACS)

### Description

Zoom Details:

<https://us02web.zoom.us/j/85656187122?pwd=NEdMZzNFc0hObkRIZUE0Smh6SWZYQT09>

Meeting ID: 856 5618 7122

Passcode: 907097

2:00 – 2:15 PM (15m) **Inauguration by Director, IOP**

2:15 – 3:45 PM (1h 30m) **Pedagogical lecture on EFT**

### Speaker

Clifford Peter Burgess (McMaster University (CA))

3:45 – 4:00 PM (15m) **Break**

4:00 – 5:00 PM (1h) **Review Talk on Flavour Physics and EFT**

### Speaker

Luca Silvestrini (CERN and INFN, Rome)

5:00 – 5:30 PM (30m) **Break**

5:30 – 6:30 PM (1h) **Review Talk on Top Physics and EFT**

### Speaker

Eleni Vryonidou (University of Manchester (GB))

7:30 PM

## Tue, February 8

9:30 AM **Tue, February 8**

9:30 AM – 1:00 PM

### Morning Session

Session | Convener: Poonam Mehta (Jawaharlal Nehru University)

#### Description

Zoom Details:

<https://us02web.zoom.us/j/85656187122?pwd=NEdMZzNFc0hObkRIZUE0Smh6SWZYQT09>

Meeting ID: 856 5618 7122

Passcode: 907097

9:30 – 10:30 AM (1h)

#### Review Talk on EFT and Neutrino Physics, Baryon and Lepton Number violation

##### Speaker

Kaladi Babu (Oklahoma State University)

10:30 – 11:00 AM (30m)

#### Break

11:00 – 11:45 AM (45m)

#### Light from the Neutrinos and Pathways to New Physics

##### Speaker

Dr Sudip Jana

1:00 PM

2:00 PM

**Tue, February 8**

2:00 – 6:00 PM

**Tuesday Afternoon Session****Session** | **Convenor:** Subhendu Rakshit (IIT Indore)**Description**

Zoom Details:

<https://us02web.zoom.us/j/85656187122?pwd=NEdMZzNFc0hObkRIZUE0Smh6SWZYQT09>

Meeting ID: 856 5618 7122

Passcode: 907097

2:00 – 3:30 PM (1h 30m)

**Pedagogical lecture on EFT****Speaker**

Clifford Peter Burgess (McMaster University (CA))

3:30 – 4:00 PM (30m)

**Break**

4:00 – 5:00 PM (1h)

**Review Talk on EFT with Sterile Neutrino****Speaker**

Martin Hirsch

6:00 PM

## Wed, February 9

9:30 AM **Wed, February 9**

9:30 AM – 1:00 PM

### Wednesday Morning Session

**Session | Convener:** Partha Konar (Physical Research Laboratory, Ahmedabad, Gujarat-380 009, INDIA)

#### Description

Zoom Details:

<https://us02web.zoom.us/j/85656187122?pwd=NEdMZzNFc0hObkRIZUE0Smh6SWZYQT09>

Meeting ID: 856 5618 7122

Passcode: 907097

9:30 – 11:00 AM (1h 30m) **Pedagogical lecture on EFT (POSTPONED)**

#### Speaker

Michael Robert Trott (University of Copenhagen (DK))

11:00 – 11:30 AM (30m) **Break**

11:30 AM – 12:15 PM (45m)

### Dark Matter freeze-in and freeze-out via Effective Operators: A couple of illustrations

#### Speaker

Subhaditya Bhattacharya

1:00 PM

4:00 PM

**Wed, February 9**

4:00 – 8:30 PM

**Wednesday Afternoon Session****Session** | **Convener:** Kajari Mazumdar (Tata Inst. of Fundamental Research (IN))**Description**

Zoom Details:

<https://us02web.zoom.us/j/85656187122?pwd=NEdMZzNFc0hObkRIZUE0Smh6SWZYQT09>

Meeting ID: 856 5618 7122

Passcode: 907097

4:00 – 5:00 PM (1h)

**Review Talk on Global SMEFT Fit****Speaker**

John Ellis (Kings College London)

5:00 – 5:30 PM (30m)

**Break**

5:30 – 6:30 PM (1h)

**Review Talk on B anomalies and EFT****Speaker**

Gino Isidori (University of Zurich (CH))

6:30 – 7:00 PM (30m)

**Break**

7:00 – 8:00 PM (1h)

**Review Talk on Higgs and EFT****Speaker**

Sally Dawson (BNL)

8:30 PM

## Thu, February 10

9:30 AM **Thu, February 10**

9:30 AM – 1:00 PM

### Morning Session

Session | Convener: Priyotosh Bandyopadhyay (Indian Institute of Technology Hyderabad)

#### Description

Zoom Details:

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Meeting ID: 856 5618 7122

Passcode: 907097

9:30 – 11:00 AM (1h 30m)

#### Pedagogical lecture on EFT

##### Speaker

Michael Robert Trott (University of Copenhagen (DK))

11:00 – 11:30 AM (30m)

#### Break

11:30 AM – 12:15 PM (45m)

#### An EFT Compendium for Exploring BSM

##### Speaker

Joydeep Chakrabortty (IIT Kanpur)

1:00 PM

2:30 PM

**Thu, February 10**

2:30 – 6:10 PM

**Student / PDF talks**

Session | Conveners: Subhadip Mitra, Sujoy Poddar (JU)

**Description**

Zoom Details:

<https://us02web.zoom.us/j/85656187122?pwd=NEdMZzNFc0hObkRIZUE0Smh6SWZYQT09>

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2:30 – 2:50 PM (20m)

**Consequences of  $b \rightarrow s \mu^+ \mu^-$  anomalies on  $B \rightarrow K(*) \nu \nu^-$ ,  $B_s \rightarrow (\eta, \eta') \nu \nu^-$  and  $B_s \rightarrow \phi \nu \nu^-$  decay observables****Speaker**

Rajeev N

2:50 – 3:10 PM (20m)

**Right Handed Neutrinos, TeV Scale BSM Neutral Higgs and FIMP Dark Matter in EFT Framework****Speaker**

ROJALIN PADHAN (Institute of Physics, Bhubaneswar)

3:10 – 3:30 PM (20m)

**Constraining the SMEFT top sector via searches in  $tZj$  and  $tt^*Z$  channels with Machine Learning****Speaker**

Rahool Kumar Barman

3:30 – 3:50 PM (20m)

**Searching for New Physics with the Standard Model Effective Field Theory****Speaker**

Tisa Biswas (University of Calcutta)

3:50 – 4:10 PM (20m)

**Cancellation in Dark Matter-Nucleon Interactions: the Role of Non-Standard-Model-like Yukawa Couplings****Speaker**

Bibhabasu De (IOP Bhubaneswar)

4:10 – 4:30 PM (20m) **Break**

4:30 – 4:50 PM (20m)

**Measurement of Higgs self coupling from non-resonant Higgs pair production in CMS experiment****Speaker**

Soumya Mukherjee (Tata Inst. of Fundamental Research (IN))

4:50 – 5:10 PM (20m)

**Phenomenological analysis of the effective extensions of BSM scenarios****Speaker**

Upalaparna Banerjee

5:10 – 5:30 PM (20m)

**Automatisation of Integrating out heavy fields at one-loop**

6:10 PM	<b>Speaker</b> shakeel ur rahaman	
	5:30 – 5:50 PM (20m)	<b>EFT Diagrammatica: UV roots of the CP-conserving SMEFT</b>
	<b>Speaker</b> Suraj Prakash	

5:50 – 6:10 PM (20m) **Directly Probing the Higgs-top Coupling at High Scales**

**Speaker**  
Roshan Mammen Abraham (Oklahoma State University)

## Fri, February 11

9:30 AM Fri, February 11

9:30 AM – 1:15 PM

### Friday Morning Session

Session | Convener: BIPLOB BHATTACHERJEE (Indian Institute of Science)

#### Description

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9:30 – 10:30 AM (1h)

#### Review Talk on Dark Matter and EFT

##### Speaker

Tim M.P. Tait (University of California, Irvine)

10:30 AM – 12:00 PM (1h 30m)

#### Pedagogical lecture on EFT

##### Speaker

Michael Robert Trott (University of Copenhagen (DK))

12:00 – 12:45 PM (45m)

#### Higgs Self-coupling in EFT framework

##### Speaker

Ambresh Shivaji (IISER Mohali)

1:15 PM

2:00 PM

**Fri, February 11**

2:00 – 8:30 PM

**Friday Afternoon Session****Session | Conveners:**

Subhadip Mitra (IIIT Hyderabad), Amit Chakraborty (High Energy Accelerator Research Organization (KEK)), Sujoy Poddar (JU)

**Description**

Zoom Details:

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Meeting ID: 856 5618 7122

Passcode: 907097

2:00 – 3:30 PM (1h 30m)

**Pedagogical lecture on Formalism of SMEFT****Speaker**

Adam Falkowski (LPT Orsay)

3:30 – 4:00 PM (30m)

**Break**

4:00 – 5:00 PM (1h)

**Review Talk on SMEFT Operators and UV Correspondences at any mass dimension****Speaker**

Jiang-Hao Yu

5:00 – 5:30 PM (30m)

**Break**

7:00 – 8:00 PM (1h)

**Review Talk Shining light on the Higgs: the Higgs boson anomalous couplings****Speaker**

Andrei Gritsan (Johns Hopkins University (US))

8:30 PM

## Sat, February 12

2:00 PM Sat, February 12

2:00 – 6:00 PM

### Saturday Afternoon Session

Session | Convener: Rohini Madhusudan Godbole (Indian Institute of science (IN))

#### Description

Zoom Details:

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Meeting ID: 856 5618 7122

Passcode: 907097

2:00 – 3:30 PM (1h 30m) **Pedagogical lecture on Formalism of SMEFT**

#### Speaker

Adam Falkowski (LPT Orsay)

3:30 – 4:00 PM (30m) **Break**

4:00 – 5:00 PM (1h) **Concluding talk**

#### Speaker

John Ellis (Kings College London)

6:00 PM