

PHYSICS WITHOUT FRONTIERS: BHUTAN

Workshop: Empowering Physical Science Faculty for Effective Teaching, Cutting-Edge Research, and Global Collaboration.

Royal University of Bhutan
8th - 10th August 2023
indico.ictp.it/event/10437

Schedule of events:

Tuesday 8th August - Welcome, Session 1 on Curriculum Development and Pedagogy.

Wednesday 9th August - Session 2 on Curriculum Development, followed by Session on Laboratory Design, Infrastructure and Equipment Development.

Thursday 10th August - Session on Research Development, International Collaboration, and Community, Policy and Industry Engagement.

Coordinator: Parsu Ram Sharma, Sherubtse college, Royal University of Bhutan

Speakers:

Kate Shaw, ICTP & University of Sussex

Iacopo Vivarelli, University of Sussex

Luke Simkins, University of Sussex

Andrea Banfi, University of Sussex



The Abdus Salam
International Centre
for Theoretical Physics
Physics Without Frontiers



The Abdus Salam

International Centre
for Theoretical Physics
Physics Without Frontiers



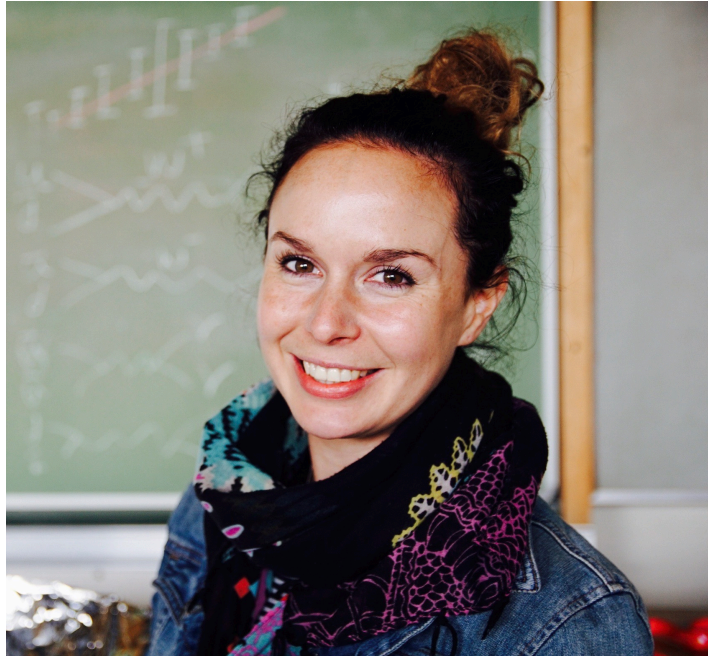
ICTP Physics Without Frontiers

Dr Kate Shaw

The International Centre for
Theoretical Physics (ICTP)
The University of Sussex

Follow us @ictpPWF

About me!



- From a small village called Gissing (250 people) in Norfolk UK.
- MPhys University of Liverpool, did my master project on the Search for the Graviton with ATLAS in 2006–2007, learning ATLAS software, programming and analysis skills
- PhD University of Sheffield (18 months based at CERN), working on the SCT commissioning and vertex reconstruction software
- 2010 Postdoctoral fellowship at ICTP, Italy, INFN – CERN fellowship at CERN, based between Trieste and CERN

- 2016 Staff scientist at ICTP and in 2018 lectureship at the University of Sussex
- Work on the ATLAS experiment, DUNE experiment, Open Science, science communication, International relations, sustainable development, and promoting physics worldwide. I founded and co-direct PWF.

The Abdus Salam International Centre for Theoretical Physics



www.ictp.it

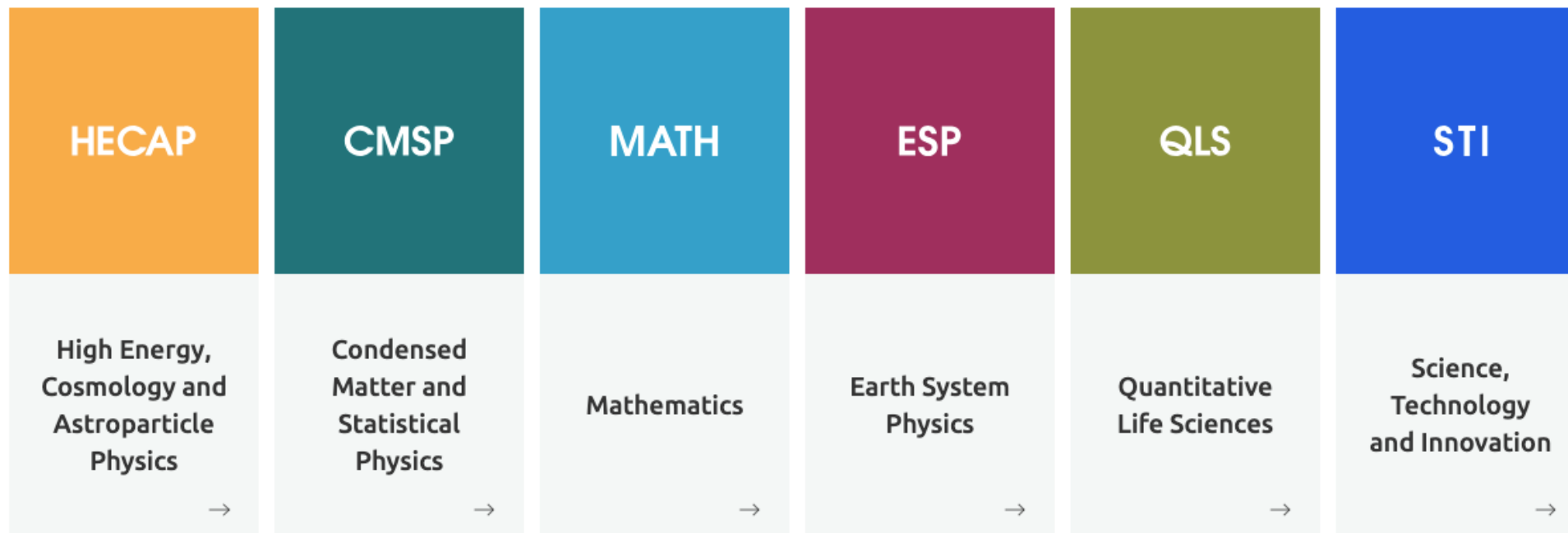
ICTP is an **international research hub** for scientific cooperation, located in Trieste, Italy.

ICTP had a three-fold mandate with a commitment to the **Sustainable Development Goals**:

- Conduct **world-class research** in frontier areas of physical and mathematical sciences
- Foster growth of these advanced studies in support of **excellence in the developing world** to help bridge the knowledge divide
- Provide an **international forum** of scientific contact for scientists from all countries

The Abdus Salam International Centre for Theoretical Physics

ICTP supports research groups in several areas of **physical sciences and mathematics**. From its early focus on theoretical high energy physics, the Centre's research areas have evolved in response to the needs of physicists and mathematicians from disadvantaged countries, and now include the following areas:






The Abdus Salam International Centre for Theoretical Physics

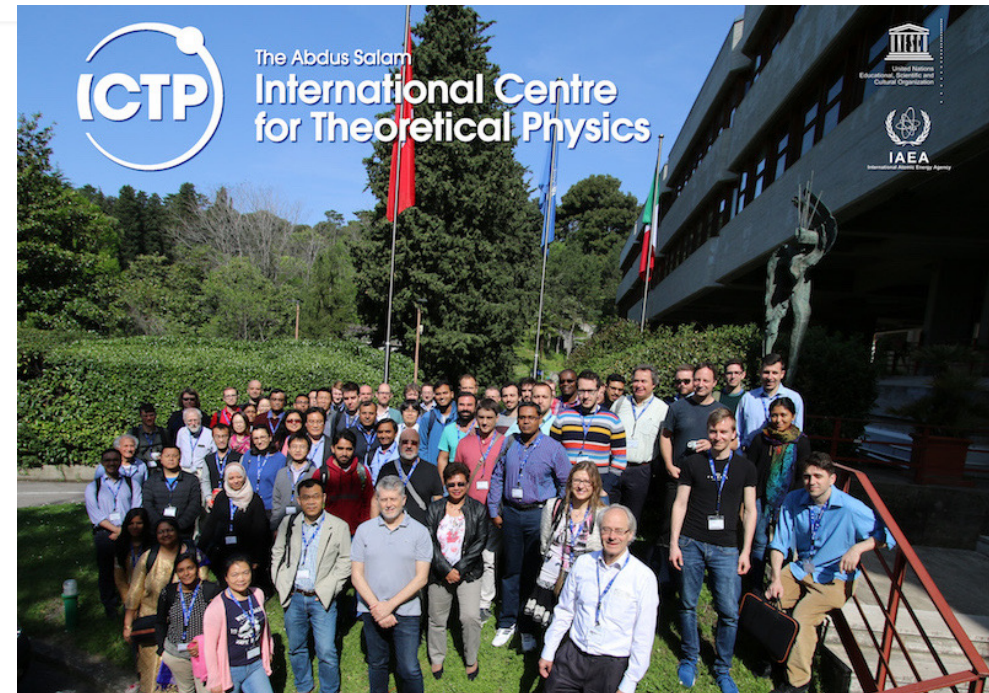
ICTP organises many **scientific activities**. Often there is no registration fee and if scientists are eligible and from a developing country ICTP supports a number of **grants to support the attendance** of the selected participant. www.ictp.it/home/scientific-calendar

November 2023

November

20

<p>Duration</p> <p>20 - 24 Nov Nov</p> <p>Apply before</p> <p>03 Sep 2023</p>	<p>Workshop</p> 	<p>Workshop on Communication in Extreme Environments for Science and Sustainable Development (smr 3893)</p>	<p>ICTP Budnich Lecture Hall (LB)</p> <p>STI SCIENCE, TECHNOLOGY AND INNOVATION</p> <p>SMR3893</p>
<p>Duration</p> <p>20 - 24 Nov Nov</p> <p>Application Closed</p>	<p>Workshop</p> 	<p>Joint ICTP-IAEA Workshop on Artificial Intelligence in Ionizing Radiation for Medical Physicists (smr 3895)</p>	<p>ICTP Kastler Lecture Hall (AGH)</p> <p>SMR3895</p>
<p>Duration</p> <p>20 - 01 Nov Dec</p> <p>Application Closed</p>	<p>School</p> 	<p>Joint ICTP-IAEA School on Systems-on-Chip Based on FPGA for Scientific Instrumentation and Reconfigurable Computing (smr 3891)</p>	<p>ICTP Giambiagi Lecture Hall (AGH)</p> <p>STI SCIENCE, TECHNOLOGY AND INNOVATION</p> <p>SMR3891</p>



Physics Without Frontiers

ICTP Physics Without Frontiers works to **inspire**, **train** and **motivate** physics and mathematics university students worldwide with some focus on science and technology lagging countries, to **help build the next generation of scientists**. Each project is unique, developed with the country's specific needs in mind.



Physics Without Frontiers

Aims of the Project

- To expose and introduce **new ideas in physics** to undergraduate and master students, provide courses and **training in key analysis skills and other transferable skills**
- To identify **strong students**, provide **mentoring** and support for further study and career
- To **connect** students and lecturers with active scientists, and support them with **international opportunities** and collaboration
- To bring awareness to the **university and policy makers** about the importance of supporting physics departments and ultimately research

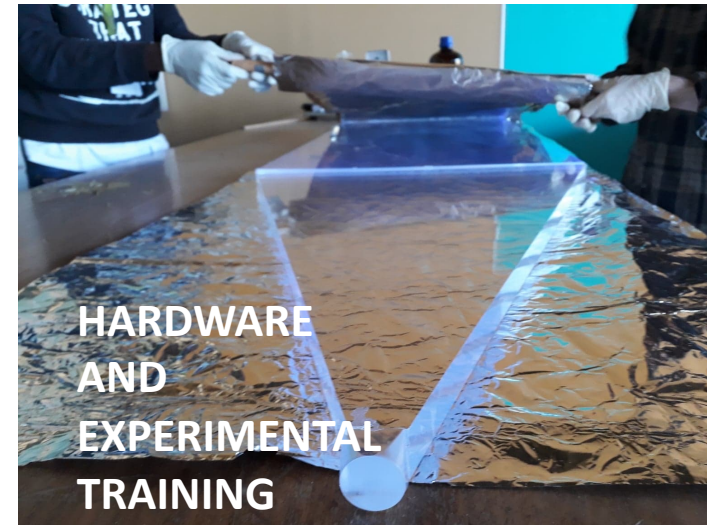
Physics Without Frontiers

Network of Volunteers



Physics Without Frontiers

Types of Activities



Physics Without Frontiers

PWF is 10 years old

Today we have worked with over **150** universities in **50** countries in the Global South impacting over **10,000** students worldwide organising hundreds of activities and events!

We have mentored over 300 students onto further study in MSc, PhD and Postdoc.



10th Anniversary
Physics Without Frontiers

Volunteer network
100 PhD students, postdocs and professors in Physics and Mathematics

300+ activities & events held at **150** universities

50 countries in the Global South

Impacting over **10,000** students worldwide

300 students have gone on to MSc, PhD and Postdoc

physicswithoutfrontiers@ictp.it
Facebook: @ictpPWF
Twitter: @ictpPWF

ICTP Physics Without Frontiers
SAFEGUARDING OUR PLANET THROUGH SCIENCE

ZIMBABWE PWF ROADSHOW:

- October 30th 2018 University of Zimbabwe
- October 31st 2018 Great Zimbabwe University
- November 1st 2018 Midlands State University
- November 2nd 2018 National University of Science and Technology

The speakers:

- Dr. Innocent Kudzoisa – Finnish Meteorological Institute (FMI), Finland
- Mr. Brassnavy Manzunu – University of Witwatersrand, South Africa
- Mrs. Linia Mashawi – Meteorological Service Department, Zimbabwe
- Dr. Riia Nogherotto – International Centre for Theoretical Physics (ICTP), Italy
- Dr. Taleena Sines – International Centre for Theoretical Physics (ICTP), Italy

don't miss it!



Physics Without Frontiers
The Abdus Salam International Centre for Theoretical Physics
ICTP

ICTP Collaboration with The Royal University of Bhutan



2019: Meeting for 'South Asian High Energy Physics Instrumentation workshop (SAHEPI)

Met and discussed with Vice Chancellor Nidup Dorji, put me in contact with Gopal Rizal, Parsu Ram Sharma, and Karma Tenzin.

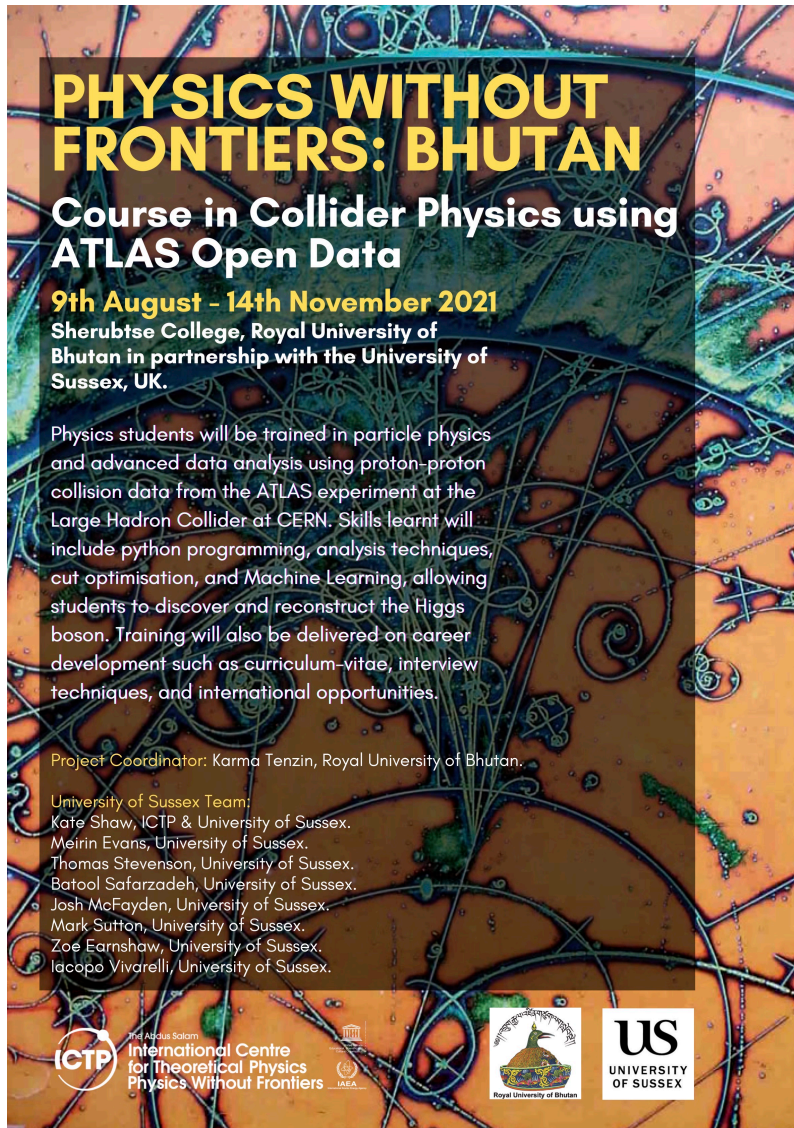
In 2021, in partnership with PWF volunteers from the University of Sussex, we organised a 3-month inline course in collider physics using ATLAS Open Data



2nd CERN - South Asian High Energy Physics instrumentation Workshop on Detector Technology and applications.

20 - 21 February 2019
Colombo - Sri Lanka

ICTP Collaboration with The Royal University of Bhutan






PHYSICS WITHOUT FRONTIERS: BHUTAN
Course in Collider Physics using ATLAS Open Data
9th August - 14th November 2021
 Sherubtse College, Royal University of Bhutan in partnership with the University of Sussex, UK.

Physics students will be trained in particle physics and advanced data analysis using proton-proton collision data from the ATLAS experiment at the Large Hadron Collider at CERN. Skills learnt will include python programming, analysis techniques, cut optimisation, and Machine Learning, allowing students to discover and reconstruct the Higgs boson. Training will also be delivered on career development such as curriculum-vitae, interview techniques, and international opportunities.

Project Coordinator: Karma Tenzin, Royal University of Bhutan.

University of Sussex Team:
 Kate Shaw, ICTP & University of Sussex.
 Meirin Evans, University of Sussex.
 Thomas Stevenson, University of Sussex.
 Batool Safarzadeh, University of Sussex.
 Josh McFayden, University of Sussex.
 Mark Sutton, University of Sussex.
 Zoë Earnshaw, University of Sussex.
 Iacopo Vivarelli, University of Sussex.

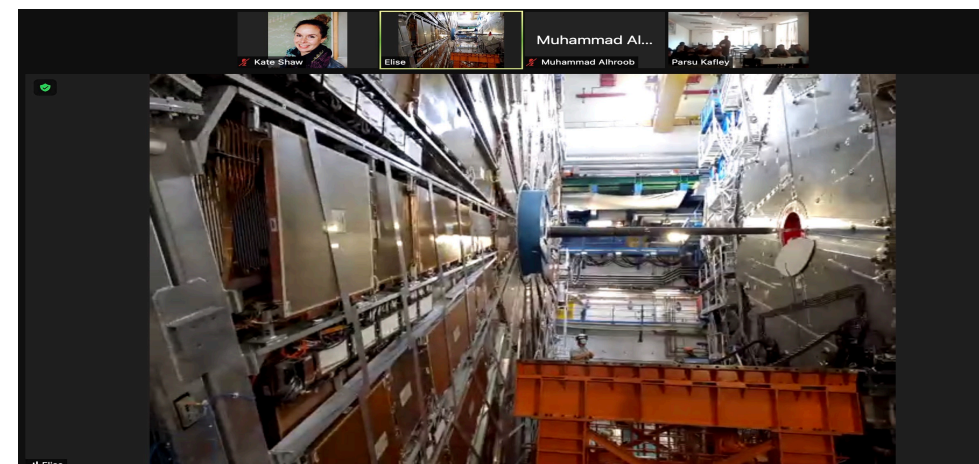


Online hands on sessions and mini lectures

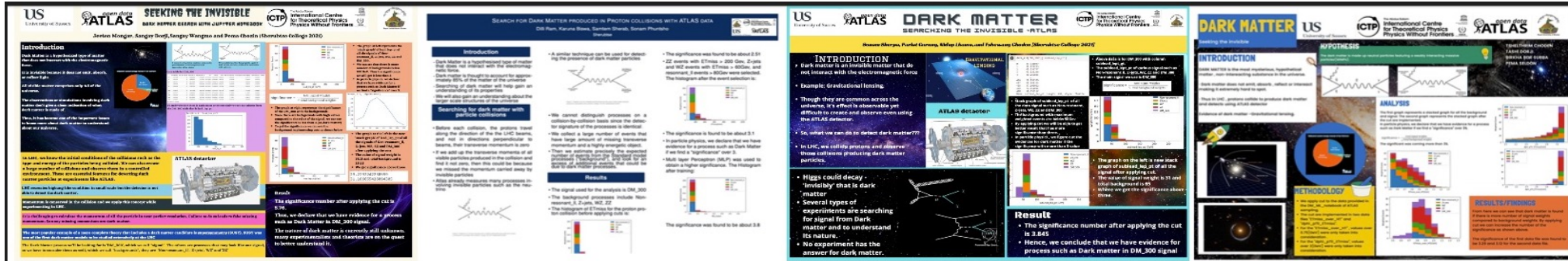
Virtual visit to ATLAS Detector at CERN

Interactive problem solving sessions

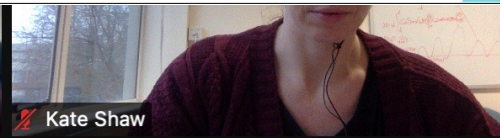
Python data analysis and machine learning



ICTP Collaboration with The Royal University of Bhutan



Parsu Kafley



Kate Shaw



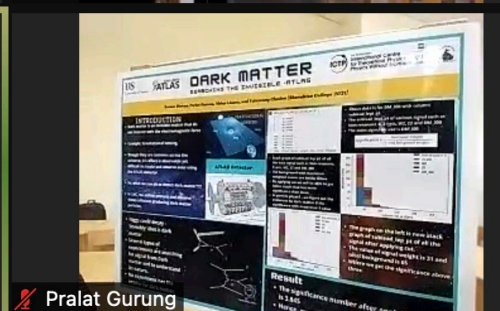
Tashi Dorji



Karuna Biswa



Jeeten Mongar



Pralat Gurung



ICTP Collaboration with The Royal University of Bhutan



PHYSICS WITHOUT FRONTIERS: BHUTAN
Workshop: Empowering Physical Science Faculty for Effective Teaching, Cutting-Edge Research, and Global Collaboration.

Royal University of Bhutan
8th - 10th August 2023
indico.ictp.it/event/10437

Schedule of events:
Tuesday 8th August - Welcome, Session 1 on Curriculum Development and Pedagogy.
Wednesday 9th August - Session 2 on Curriculum Development, followed by Session on Laboratory Design, Infrastructure and Equipment Development.
Thursday 10th August - Session on Research Development, International Collaboration, and Community, Policy and Industry Engagement.

Coordinator: Parsu Ram Sharma, Sherubtse college, Royal University of Bhutan
Speakers:
Kate Shaw, ICTP & University of Sussex
Iacopo Vivarelli, University of Sussex
Luke Simkins, University of Sussex
Andrea Banfi, University of Sussex




 The Abdus Salam
**International Centre
 for Theoretical Physics**
 Physics Without Frontiers 

Next steps:

This week we are holding this workshop with you all, and we send kind appreciation to Parsu for his coordination.

We intend to support more international networking and collaboration, support curriculum development, support you and your students onto opportunities for further study and training