UTTIYA SARKAR

Post Doctoral Researcher - Experimental High Energy Physics

CONTACT

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RESEARCH INTEREST

I have been working in Compact Muon Solenoid (CMS) experiment at Large Hadron Collider (LHC). I am involved in the Electromagnetic Calorimeter (ECAL) trigger operations and acquisition and algorithm development for High granularity calorimeter (HGCAL), performance studies of Hadron calorimeter (HCAL). During the PhD, I was involved in data analysis for Supersymmetric models, HCAL performance and Strip tracker data acquisition monitoring.

RESEARCH EXPERIENCE

Post Doctoral Researcher- CNRS — **04.2021 - 04.2023**
Ecole Polytechnique, Palaiseau

Involved in CMS ECAL operations and performance for Run-3 data taking, Jet performance studies for HGCAL detector phase-2 upgrades and Reinterpretation of boosted Z boson searches under phenomenological MSSM.

Ph.D. - Experimental High Energy Physics — **08.2015 - 02.2021**
Tata Institute of Fundamental Research - Mumbai (India)

Physics analysis on Search for Supersymmetry in the final states of boosted Z bosons and missing transverse energy and detector performance studies of the local reconstruction method for barrel and endcap hadron calorimeter (HCAL) at CMS in Run2

Visiting Researcher — **01.2019-06.2019**
Fermilab, Batavia IL

Algorithm development of the electronic concentrator (ECON) of High Granularity calorimeter (HGCAL) for phase 2 upgrades at CMS, FPGA board hardware development (prelim) for phase 2 upgrade at CMS

EDUCATION

Ph. D. - Experimental High Energy Physics — **08.2015 - 02.2021**
Tata Institute of Fundamental Research, Mumbai (India)

M.Sc. - Physics — **08.2013 - 06.2015**
Indian Institute of Technology, Indore (India)

Graduated as topper in class CGPA: 8.9

B.Sc. - Physics — **06.2010 - 06.2013**
Burdwan Raj College, Burdwan (India)

Graduated as top 1% in class Percentage: 72.25%

PROGRAMMING SKILLS

Languages: C++, Python, BASH 4+ yrs

Web: JavaScript, HTML, PHP 4+ yrs

Markup: Latex 6+ yrs

IDE: Visual Studio, Jupyter 2+ yrs

Version Control: Git, Github, Gitlab 4+ yrs

HEP Software: CMSSW, ROOT, Pythia, FastJet 6+ yrs

ACHIEVEMENTS

INSPIRE Scholarship for Higher education (Govt. of India)

CSIR-UGC NET for Junior Research Fellowship (Govt. of India)

Topper, Masters in Science, Indian Institute of Technology Indore (CGPA 8.9)

National Physics Graduate Examination, Places among top 1% (Govt. of India)

LANGUAGE SKILLS

Bengali	Native
English	Native
Hindi	Fluent
French	A2

PUBLICATIONS

- Search for supersymmetry in proton-proton collisions at $\sqrt{s}$ = 13 TeV in events with high-momentum Z bosons and missing transverse momentum **JHEP09(2020)149**
- Searches for supersymmetry in CMS **ICNFP 2020 Conference Report**
- Performance of the local reconstruction method for barrel and endcap hadron calorimeter at CMS in Run2 **In preparation**
- One of the co-authors of **156** papers published by CMS collaboration

CONFERENCES, WORKSHOPS, SCHOOLS

PHENO 2021 — 05.2021
University of Pittsburgh

ICNFP 2020 — 09.2020
Crete, Greece

pyHEP 2020 — 07.2020
Virtual

Workshop on High Energy Physics Phenomenology (WHEPP) — 12.2019
Indian Institute of Technology, Guwahati

Asia Pacific School on High Energy Physics (APSHEP) — 09.2018
Quy-Nhon, Vietnam

SUSY Pre-School and Conference 2017 — 12.2017
TIFR, Mumbai

CKM Unitarity Triangle 2016 — 09.2016
TIFR, Mumbai

TALKS

- **Pheno 2021, Pittsburgh. Parallel Searches for SUSY in hadronic final states with the CMS experiment**
- **ICNFP 2020, Crete. Parallel SUSY in CMS**
- Pre-approval, approval and internal talks of Physics analysis
- **CMS week Sept 2019 Effect of FE choice on VBF jet selection**

TEACHING EXPERIENCE

- Guiding Ph.D. student **Ms. Giovanna Salvi** and **Mr. Yash Kumar** for the operations and commissioning of ECAL trigger for Run-3 data collection
- Guided Masters student **Ms. Susmita Mondal** in 6 months project, now she is placed as a Graduate Teaching Assistant at University of Wisconsin-Madison

LEADERSHIP SKILLS

Contact person of boosted Z boson plus missing energy analysis

Set up of Fermilab workstation for testing and programing ASIC modules

Co-hosted seminar on "Webinar on Future trends and career in Physics 2020", organized by Darjeeling Govt. College West Bengal

EXTRA-CURRICULAR

Film-making: Contributor to feature documentary Life in a day 2020

Music: Bronze medal in Indian percussion instrument Tabla

Sports: Cricket, Table-tennis, Chess

- Grader of Particle Physics course in home institute for summer semester 2018

OTHER CONTRIBUTIONS IN ACADEMIA

- Involved in satellite communication related studies and studying space weather using navigation satellites
- Masters thesis in Four-Ferminoic tensorial interaction
- Outreach talks among college/university students for career in large collaborations **YouTube**

REFEREE

Gagan Mohanty, Associate Professor
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James Hirschauer, Scientist
Fermilab, MS 205, Wilson Hall 11E , P.O. Box 500 Batavia, IL, USA 60510-5011

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Jogesh Pati, Emeritus Professor - Dirac Medal Winner
Stanford Linear Accelerator Center National Accelerator Laboratory, Stanford

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