

## **BUSHRA KANWAL**

Assistant Professor (ad hoc)

Center for High Energy Physics, Punjab University, LHE

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### **PROFESSIONAL EXPERIENCES**

#### **X-Ray Optic Lab, Department of Physics, Albany, NY**

##### **Research Assistant**

- Phase Contrast Imaging using tungsten x-ray source and polycapillary optic. Worked on modeling and design of experimental setup as well as performed analysis of measured data for edge enhancement.
- Phase properties of the polycapillary optic were modeled to assess the coherence of beam from polycapillary optic.
- To investigate the high resolution, the x-ray compound imaging system was modeled with grating.
- Modeled and simulated the Double Slit experiment.
- Completed Radiation Safety Training and Hazardous Material Training.

#### **Particle Physic Lab, Department of Physics ,Albany, NY**

- Computational analysis of data collected by Atlas detector for  $t\bar{t}$  cross section in tau plus jet channel at 7 TeV as part of the SUNY Particle Physics group in collaboration with Oklahoma Particle Physics group.

#### **AdCos Shifter, Department of Physics, Albany, NY**

- Remotely monitored ATLAS Distributed Computing (ADC) activities, for any existing issue, collect as much as information about issue, report that issue in a ticket.

### **TEACHING HISTORY:**

#### **Assistant Professor (ad hoc), CHEP, LHE.**

- Taught BS and Ms Level Physics.

Oct 2015- Present

#### **Substitute Teacher, Capital Region BOCES, Albany, NY.**

- Taught Middle and High Level School Physics.

Dec 2014- Aug  
2015

#### **Lecturer, Physics Dept. SUNY Albany, NY.**

- Taught General Physics lab PHY (106),(105),(155),(109) and tutoring undergraduate physics course
- Setup, tested, and debugged new and used laboratory equipment.

2013 – 2015

#### **Teaching Assistant, Physics Dept. SUNY Albany, NY.**

- Taught PHY 106 General Physics Lab I, PHY 109 General Physics Lab II, Graded General Physics I homework and exam.

2010-2013

## SKILL

- Wrote Code in Visual basic for Monte Carlo simulation of the optic experiments.
- Worked in Matlab for registration of images to see the weak attenuation and phase duality.

## ACADEMIC PORTFOLIO

### Publications:

- **BushraKanwal**, Dr. Carolyn MacDonald, et al. “Modeling of a Compound System with Curved monochromator and polycapillary”, *Proc. SPIE 9209*, Advances in Computational Methods for X-Ray Optics III, 92090O September 5, 2014.
- Jonathan C.Petruccelli, Dr. Carolyn MacDonald, **BushraKanwal**, et al. “Practicable phase contrast techniques with large spot sources”, *Proc. SPIE 941254*, Physics of Medical Imaging, March 18, 2015; doi:10.1117/12.2082386.

### Presentations:

- Poster presentation, Modeling of Optic for Phase and High Resolution, at PASCAL Conference, SUNY, Albany, NY 7th March, 2015.
- Modeling of Compound System with Monochromator and Polycapillary Optic, SPIE, International Society for Optics and Photonics, San Diego, California, 21st August, 2014.
- Modeling and Measuring Polycapillary Optic for Phase Imaging, Physics Department, University at Albany, 10th October, 2014.
- Tau plus Jet Histogram, Indico, Cern, 4th May, 2012.
- A Summary of Top Quark Physics at Tevatron, Indico, Cern, 16th Dec, 2011.

### Additional Conferences/Workshops:

- LHC/T1/T2/T3 Networking workshop, Brookhaven National Lab, May, 2008.
- ATLAS workshop of the Americas, New York University, August, 2009.

## AWARDS & HONORS

- Travel Grant, SUNY Research Foundation, SPIE Conference, San Diego, CA. 2014
- Graduate Student Association, Summer Grant, University at Albany, NY. 2014
- Mr.& Mrs. Mahmood Alam Award, best performance in Comprehensive exam, University at Albany, NY. 2010
- Merit Scholarship, Punjab University, Lahore. 2007-2010

- 1st Position, MSc Physics Part II, 6th Position (part 1 & part 2) 2003

### ACADEMIC QUALIFICATIONS

- **PhD**, University at Albany, SUNY, NY. Dec 2015
- **M.S Physics**, GPA (3.85/4.0), University at Albany, SUNY, NY. 2007-2010
- **M.Phil. Particle Physics**, Punjab University, Lahore, Pakistan. 2004-2007
- **M.Sc. Physics**, Punjab University, Lahore, Pakistan. 2001-2003

### TECHNICAL PROFICIENCIES

Platforms: Linux , Windows 7, Mac OS  
Languages: Visual Basic, C++,  
Tools: Matlab, XManager, Origin, MS Office, Root.  
Other: Experience working with X-ray Optical element, X-ray Source, X-ray Detectors, High Voltage Power Supplies, Multi-Channel Analyzer Programmable Motion Controller & Automated Control Program (ACP). ACP has two modes MCS (Multi channel Analyzer) for counts and PHA (Pulse Height Analyzer) for spectra, Poly Capillary Lens, Optical Stages, Phosphor Screen, Si Detector, CCD camera.