Diwaker Jha

Nano-Science Center, University of Copenhagen, Universitetsparken 5, 2100 Copenhagen, Denmark, diwaker.jha@nano.ku.dk

Research:

I am interested in developing new methods for high resolution imaging in general. My work will be mainly focused on the investigation of porous materials by means of X-ray scattering techniques, small angle scattering, X-ray reflectivity, micro and nano tomography using synchrotron radiation sources, study of flow properties, pore throat distribution and their time dependent evolution supplemented by *in-situ* measurements.

Education:

08. 2012:	Master of Science in Physics, University of Leipzig, Germany				
	 Diploma thesis: Optimization of the surface mobility on TiO₂ thin films, Quantitative study of charge carrier activation, their lifetimes, trapping and influencing factors Supervisor: Professor Dr. Dr. h.c. Bernd Rauschenbach, PD. Dr. Stephan Mändl Institution: Leibniz Institute of Surface Modification, Leipzig, Germany 				
Work Experie	ence:				
2012 – date:	Nano-Science Center, University of Copenhagen, Denmark PhD fellow, Nano tomography, modeling and calculation of fluid flow properties of natural porous material				
2011 – 2012:	Leibniz Institute of Surface Modification, Leipzig, Germany TiO ₂ Thin film deposition by means of UHV plasma reactor, and characterization using, SEN XPS, Raman spectroscopy, FTIR, XRD and ERDA				
2011 – 2012:	Max Planck Institute for Brain Sciences, Leipzig, Germany Instrument modification, developing interface programs for real-time experiments, ar mathematical analysis of multi-dimensional data from NMR unit				
2010 – 2011:	Ventana Medical Systems, Inc., Arizona, U.S.A. Developed Pico-second resolution focused ultrasonic Time-of-flight measurement system for cancer cell biopsy (self fabricated piezo- transducers interfaced with Ni Labview FPGA)				
2009 – 2011:	Department of solid state optics and acoustics, University of Leipzig, Germany, EU FP7 Project, "Aircraft Integrated Structural Health Assessment II"				
	• Simulating and fabricating EMAT (Electromagnetic acoustic transducers), HF Piezo- transducer, photolithography, scanning probe imaging of photonic crystals, confocal laser scanning microscopy of nano particles, stress sensors using laser interferometer, Signal generation and data acquisition using FPGA and PC interfacing.				
	 Signal processing, on demand functional programming and FEM simulation. 				
3.2011:	Department of Engineering Mechanics, University of Arizona, Tucson, AZ, U.S.A. setting up an experiment to read out the wave propagation and dispersion relation actuated by a point source in metallic medium; reference: Professor Dr. Tribikram Kundu				

- **3.2010:** Department of Engineering Mechanics, University of Arizona, Tucson, AZ, U.S.A. Modeling and experimenting to inspect the dependence of elastic wave's time-of-flight on induced stress/strain in the metallic medium; reference: Professor Dr. Tribikram Kundu
- 2007 2010: Jet propulsion Laboratory, NASA
 Volunteer outreach member of Cassini-Huygens Mission to Saturn program, regular
 observation, recording and reporting of the activity of the planet Saturn in relevance to Cassini
 mission using a telescope
- 2008 2009:Tutor at Intellego BerlinTutoring Physics and mathematics to secondary school students, Berlin, Germany
- 2003 2004: Ecological Society of Janakpur Instructor for physics, scientific experiments and educational projects in the science club branch, Janakpur, Nepal

Publication and Presentations:

- **D. Jha**, D. Manova, J.W. Gerlach, W. Assmann, E. Valcheva, S. Mändl, "Charge carrier activation and lifetime assisted by trapping in TiO₂ thin films", (Manuscript finalization **in progress**)
- D. Jha, D. Manova, J.W. Gerlach, W. Assmann, E. Valcheva, S. Mändl, "Influence of Interface on Photoactive Properties of TiO₂", Plasma Surface Engineering – 2012, Garmisch-Partenkirchen, Germany, Poster presentation
- Umar Amjad, D. Jha, K. S. Tarar, Wolfgang Grill "Sub-millimeter Damage detection in metallic structures by Scanned Electromagnetic Acoustic transducers", IEEE Ultrasonics 2012 (Work in progress), (Manuscript finalization in progress)
- M. Pluta, U. Amjad, H. Klinghammer, D. Jha, et al., "Stress dependent dispersion relation of acoustic waves travelling on chain of point masses connected by anharmonic linear and torsional springs", Acoustical Imaging Vol 31, pp253 - 265, (2012) Book Chapter
- U. Amjad, D. Jha, K. Tarar, et al., "Determination of the stress dependence of the velocity of Lamb waves in aluminum plates", Proc. SPIE (2011). SPIE conference on Smart structures/NDE in San Diego, U.S.A 2011, Conference Proceeding
- Abdelrahman, U. Amjad, **D. Jha**, et al., "Zero order mode selective excitation and highly resolved observations of lamb waves", Proc. SPIE (2011). SPIE conference on Smart structures /NDE in San Diego, U.S.A 2011, **Conference Proceeding**
- K. Hahn, U. Amjad, K. Tarar, D. Jha, et al., "Mode selective excitation and detection of Lamb waves", Proc. SPIE (2010). SPIE conference on Smart structures/NDE in San Diego, U.S.A 2010, Conference Proceeding
- D. Jha, "Structural sensing in Aircraft's body", poster presentation and live demonstration in partnership with European Space Agency at the event 'Hannover Messe 2010', Hannover, Germany, Poster Presentation and Live demonstration
- D. Jha, "High contrast sub-millimeter surface defect detection and imaging using Fourier and Hilbert transformation", poster presentation and live demonstration at the event 'Lange Nacht der Wissenschaften 2010', Leipzig, Germany, Poster Presentation
- **D. Jha**, "Implementation of hand eye coordination incorporated with machine vision and speech on a robotic platform", followed by live demonstration at Nepal academy of science and technology, 2005, Kathmandu, Nepal, **Live demonstration**

- Student member of IEEE and student member of SPIE since 2010
- "Orbit International Education Award", full scholarship for German language course in Germany by Orbit international education center, Nepal (2007)
- WYP International Young Physics Ambassador with commendation letter from Professor Dr. Claude Cohen Tannoudji, Nobel laureate in physics 1997, (2005)
- Nepal academy of science and technology award for development of robotic systems with machine vision and speech, Nepal (2005)
- National Gold Medal for contribution in science and technology by developing self-sustained low-cost energy efficient process automation techniques for rural areas in Nepal, 32nd national convention of JCI (Junior Chambers International), Nepal (2005)

Linguistic Proficiency:

Language:	Maithili	Nepali	English	German	Hindi
Skill Level:	Native	Native	Proficient	Upper intermediate	Proficient

Additional competences:

- Programming and simulation: FEM (COMSOL Multiphysics, Abaqus), NI Labview, Matlab, Visual Basic, VHDL, C/C++, Python
- Computer skills: Linux, Windows, Mac; Text processing: Latex, MS Office
- Electronics: Computer interfacing and synchronization, high-frequency circuits, microcontrollers (Atmel AVR, TI MSP430) programming and Implementation, FPGA controlled arbitrary signal generation and data acquisition (ACTEL), Development of robotic systems (Vision, speech, artificial neural network).