

Ram CHAND

Associate Professor in Physics & Chairperson of the Department

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The Begum Nusrat Bhutto Women University, Sukkur, Sindh, Pakistan



Highly technical physics researcher & teacher with more than 20 years' experience educating students and conducting research in condensed matter physics and related physics topics. Innovative, efficient, and dedicated researcher/teacher in physics and multi-disciplinary research fields. Specialize in the topics of soft condensed matter physics, soft matter physics, and computational physics.

I have a record experience in Information Technology and Learning Management Systems (LMS). I teach physics using Blackboard and Google Classroom. I am also chairperson and member of Board of Studies, Academic Council and National Textbook Board to launch and develop new programs and improve the curriculum of physics.

Additional research interests include Particle Physics, QFT, Dark Matter & Dark Energy, CP-violation, and Spontaneous Symmetry Breaking.

SKILLS

Programming	C++/C#, Python, Typescript, \LaTeX
Simulations	Discrete Element Method (DEM) : LAMMPS, LIGGGHTS, EDEM, LMGC90, Star CCM+
Machine Learning Technique	Machine Learning and Deep Learning
2D/3D Animation	Blender 3D, Cinema 4D, Apple Motion, After Effects and Unity3D
Graphics	Photoshop, Illustrator, Affinity Designer, Affinity Photo
Experimental Skills	Granular flow, microfluidic channel flow, static granular piling, segregation and avalanche phenomena in particles; Dynamic Light Scattering (DLS) technique for probing granular flow, High speed camera monitoring
Editing/Composing	\LaTeX , MS Office, Apple Pages, Affinity Publisher
Operating Systems	Mac OS X, Windows Server, Windows 10, Linux Ubuntu
Multimedia Teaching	I have record experience of teaching on interactive multimedia system in class rooms. I create 2D/3D physics teaching materials for interactive teaching; some of my work is available on my youtube channel : www.youtube.com/raguelmoon

EXPERIENCE

Working June 2021	Associate Professor & Chair The Begum Nusrat Bhutto Women University, SUKKUR, Pakistan <ul style="list-style-type: none">> Directly supervise and oversee faculty members' and students' activities> Establish and maintain high standards throughout the laboratory environment> Designed and launched new curriculum that incorporates the latest teaching research standards> Taking classes of B.S students and conducting research <p>Teaching Supervise Chairperson Research</p>
May 2021 January 2019	Assistant Professor University of Hail, HAIL, Kingdom of Saudi Arabia <ul style="list-style-type: none">> Conduct independent research in soft matter physics> Taking classes and labs of undergrad and master students> Earned the trust and respect of students through constant, transparent communication efforts.> Distributed examination material at the end of the course. Concluded laboratory, coursework, and the examination with follow-up lectures and comprehensive reviews. <p>Teaching Research</p>
December 2018 September 2018	Assistant Professor College Education Department, GOVT. OF SINDH, KARACHI, Pakistan <ul style="list-style-type: none">> Earned the trust and respect of intermediate and Bachelor-level students through constant, transparent communication efforts.> Distributed examination material at the end of the course. Concluded laboratory, coursework, and the examination with follow-up lectures and comprehensive reviews.> Design and launch new curriculum that incorporates the latest research standards as well as all college requirements. <p>Teaching Research</p>

2018 | **Principal | Government Girls Degree College, JHUDDO, Pakistan**
 2017 | Directly supervise and oversee student activities including their financial well-being. Teach intermediate and Bachelor-level courses and their corresponding lab work. Establish and maintain high standards throughout the laboratory environment. Periodically audit maintenance records as well as equipment functionality. Assess student performance through periodic exams as well as other in-class discussions. Customize lesson plans to meet students' academic goals and objectives.

- > Designed and launched new curriculum that incorporates the latest research standards as well as all college requirements.

Teaching Supervise

December 2014 | **Visting Research Fellow | University of Malaya, KUALA LUMPUR, Malaysia**
 December 2013 | Gathered laboratory experiment data and performed research in granular material utilizing Discrete Element Method (DEM) Simulations.

- > Conduct classes and lab works of BS students.
- > Collaboratively led and supervised the activities of Master-level and PhD students throughout the University. Improved their productivity and output significantly.
- > Facilitated learning experiences for Bachelor of Science students in laboratory settings. Perfected their laboratory experimentation and analysis skills.
- > Oversaw upperclassmen activities as well as lab work/experiments. Provided guidance, mentorship, and general advice during all activities.

Physics DEM Simulations Research

January 2017 | **Lecturer in Physics | College Education Department, GOVT. OF SINDH, KARACHI, Pakistan**
 May 2002 |

- > Earned the trust and respect of intermediate and Bachelor-level students through constant, transparent communication efforts.
- > Distributed examination material at the end of the course. Concluded laboratory, coursework, and the examination with follow-up lectures and comprehensive reviews.
- > Remained flexible and traveled to different colleges throughout the local community to facilitate lectures.
- > Provided after care and support to all students.

Teaching Research

LANGUAGES

English ●●●●○
 Chinese ●○○○○
 Urdu ●●●●●
 Sindhi ●●●●●

STRENGTH

- > Passionate
- > Motivated
- > Autonomous

EDUCATION AND CREDENTIALS

2014 | **Postdoc** in Condensed Matter Physics, University of Malaya, Kuala Lumpur, Malaysia
 2012 | **PhD** in Condensed Matter Physics, Beijing Institute of Technology, Beijing, China
 2000 | **Master of Science** in Physics, University of Sindh, Jamshoro, Pakistan
 1999 | **Bachelor of Science** in Physics (Hons), University of Sindh, Jamshoro, Pakistan

EXPERIENCE RELATED TO STATUTORY BODIES OF UNIVERSITIES

Senate | Member of Senate, The BNB Women University, Sukkur
Board of Studies | Chairperson & Member of Board of Studies (BOS), The BNB Women University, Sukkur
Academic Council | Member of Academic Council, The BNB Women University, Sukkur
Selection Board | Member of Selection Board, The BNB Women University, Sukkur
Editorial Board | Member & Author of Editorial Board to write curriculum for physics textbook, Sindh Textbook Board, Jamshoro

PROJECTS

July 2021-22 | **Project No. RG-31083 | Designing of Nanostructures : Renewable Energy Device Applications, UNIVERSITY OF HAIL, Saudi Arabia**
 This project was funded by the Deanship of Scientific Research, University of Hail, Saudi Arabia. Funding Amount : SAR 98400
 Research & Publication

- July 2020-21 | **Project No. RG-20086 | Simulating the γ -ray and neutron attenuation properties of some materials susceptible to be used for the conception of neutrons and γ -ray shielding : Efficient and deterministic analysis using theoretical simulation codes, UNIVERSITY OF HAIL, Saudi Arabia**
 This project was funded by the Deanship of Scientific Research, University of Hail, Saudi Arabia. Funding Amount : SAR 106400
 Research & Publication
- January 2014 | **Nonlinear wave dynamics in complex granular materials, UNIVERSITY OF MALAYA, Malaysia**
 January 2015 | This research project was funded by University of Malaya, Kuala Lumpur (Malaysia) under the Advance Fundamental Research Funding. I was the PI in the project. The total fund of USD10,000 was released for one year (Jan 2014-Jan 2015). We established research lab and carried research with one master student as assistant. All fund was utilized properly. We have 2 publications.
 Supervision Research
- July 2014 | **Anomalous transport of soft-granular biomaterials in microenvironment, UNIVERSITY OF MALAYA,**
 July 2016 | This research project was funded by University of Malaya, Kuala Lumpur (Malaysia) under the FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS). I was the co-PI in the project. The total fund of USD70,000 was released for 2 year (July 2014 - July 2016). We carried out research and hired two students (one Master and one PhD). We published 3 research articles.
 Supervision Research

SEMINARS, CONFERENCES, WORKSHOPS AND WEBINARS

- 2023 Workshop on **SciTinyML : Scientific Use of Machine Learning on Low-Power Devices** by ICTP, Trieste, Italy
- 2021 Workshop on **SciTinyML : Scientific Use of Machine Learning on Low-Power Devices** by ICTP, Trieste, Italy
- 2021 Conference on **A Rainbow of Dark Sectors** by Aspen Physics Center, USA
- 2019 Workshop on **Soft Granular Materials** at Max Planck Institute of Complex Systems of Physics, Dresden, Germany (Travel and housing grant)
- 2018 Workshop on **Single Nanostructures, Nanomaterials, Aerogels & Their Interactions : Combining Quantum Physics & Chemistry** at Max Planck Institute of Complex Systems of Physics, Dresden, Germany (Travel and housing grant)
- 2015 Webinars on promoting high school teaching of basic sciences using 3D animations
- 2014 Webinars on teaching physics to O-Level and A-Level students using Physics Game engine (Unity 3D application)
- 2014 School on Hand-on workshop on animation techniques using Physics Comsol at University of Malaya, Malaysia
- 2013 **School on Hand-on Research in complex system**, ICTP, Trieste, Italy (travel and housing grant)
- 2012 **Workshop on Recent Developments in Astronuclear and Astroparticle Physics**, ICTP, Trieste, Italy (Travel and housing grant)
- 2011 Attended **Pakistan - China Young Scientist Forum** in Beijing, China (travel and housing grant)
- 2005 Attended **the 5th In-Service Refreshment Course in Physics for College Teachers** held at Physics Department University of Sindh, Jamshoro in Collaboration of HEC (Higher Education Commission, Govt of Pakistan), Pakistan (travel and housing grant)

REFERENCES

Dr. Imtiaz A Brohi

Chairperson

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Dr. Murad Ali Khaskheli

Professor

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- 2024 Ram Chand *et al*, "Influence of numbers of particle-contact on vertical segregation of binary granular mixtures", Under review
- 2024 Ram Chand *et al*, "Electroactive ferrites nanostructure driven electrochemical platform for selective detection of dopamine", *Inorganic Chemistry Communications*, 160, 111997
- 2023 Mukhtiar Amur, Fayaz Hussain, Nasreen Begum, Sajjad Hussain, Ram Chand, Sikandar Ali, Ahmed Ali, "Synthesis and Characterization of Cr³⁺ doped BiFe_{1-x}Cr_xO₃ Multiferroic Ceramics", *Journal of Nanoscope (JN)*, 4, 1, 31-44
- 2022 Ram Chand *et al*, "Green Synthesis of Ag₂S/ZnS Composites and Their Application for Seeds Germination to Explore Critical Aspect", *Journal of Inorganic and Organometallic Polymers and Materials*, 1-14
- 2022 Mohammad Ilyas Abro, Ehsan Elahi, Ram Chand *et al*, "Estimation of a trend of meteorological and hydrological drought over Qinhui River Basin", *Theoretical and Applied Climatology*, 147, 1065-1078
- 2021 Ram Chand *et al*, "Computational and experimental investigations on electronic and optical response of oxygenated MoS₂", *Physica Scripta*, 96 125871
- 2021 MA Khaskheli, MI Abro, Ram Chand, E Elahi, FM Khokhar, AA Majidano, "Evaluating the effectiveness of eggshells to remove heavy metals from wastewater", *Desalination and Water Treatment*, 216, 239-245
- 2021 NNorah AM Alsaif, Youssef Elmahroug, *et al*, Ram Chand, "Calculating photon buildup factors in determining the γ -ray shielding effectiveness of some materials susceptible to be used for the conception of neutrons and γ -ray shielding", *Journal of Materials Research and Technology*, 11, 769-784
- 2021 SB Jamali, MA Khaskheli, MI Abro, Ram Chand, N Rekik, H Affan, R Ikram, "Confirming the SERS enhancement at large mapping area using self-assembly of silver nanocube at liquid-liquid cyclohexane/water interface", *Journal of Molecular Liquids*, 326, 115365
- 2020 N Rekik, NAM Alsaif, HT Flakus, U Farooq, Ram Chand, "A unified quantum model susceptible to elucidate the dissimilarity of IR spectral density of dicarboxylic acid crystals : Phthalic and terephthalic acid crystals cases", *Spectrochimica Acta Part A : Molecular and Biomolecular Spectroscopy*, 242, 118728
- 2019 Ram Chand, RH Lajimi, S Uddin, S Meghwar, U Farooq, N Rekik, "Numerical Simulations on Mixing Dynamics of Spherical and Non-Spherical Tablets in a Pan Coater", *Engineering, Technology & Applied Science Research* 9 (6), 5029-5032
- 2019 Ram Chand, MAK Saeeduddin, AM Soomro, H Saleem, "Fractal Analysis of Light Scattering Data from Gravity-Driven Granular Flows", *International Journal of Computer Science and Network Security*, 19 No.7, 83-89
- 2017 Ram Chand, SV Muniandy, C San Wong, J Singh, "Discrete element method study of shear-driven granular segregation in a slowly rotating horizontal drum", *Particuology* 32, 89-94
- 2016 Y Sandali, R Chand, Q Shi, "Buoyancy in granular medium : How deep can an object sink in sand?", *Physica A : Statistical Mechanics and its Applications*, 451, 560-564
- 2016 A Qadir, NA Ispalove, A Ali, R Chand, MA Shah, A Khan, K Hussain, "Experimental and numerical determination of apparent mass variation of granular media confined in silo geometry", *Acta Physica Polonica A* 129 (3), 378-382
- 2014 R Chand, MA Khaskheli, A Qadir, Y Sandali, Q Shi, "Influence of spontaneous percolation on apparent mass at the bottom of a Janssen granular column", *Physica A : Statistical Mechanics and its Applications* 393, 96-100
- 2013 G Bao-Liang, S Qing-Fan, R Chand, H Jian-Feng, M Shao-Peng, "The nature of stresses in a giant static granular column", *Chinese Physics Letters* 30 (4), 048101
- 2013 MA Khaskheli, P Wu, R Chand, X Li, H Wang, S Zhang, S Chen, Y Pei, "Structural and dielectric properties of Ti and Er co-doped HfO₂ gate dielectrics grown by RF sputtering", *Applied surface science* 266, 355-359
- 2012 R Chand, MA Khaskheli, A Qadir, B Ge, Q Shi, "Discrete particle simulation of radial segregation in horizontally rotating drum : Effects of drum-length and non-rotating end-plates", *Physica A : Statistical Mechanics and its Applications* 391 (20), 4590-4596
- 2012 R Chand, Q Shi, A Qadir, S Ma, G Sun, "Fluctuations in apparent mass at the bottom of granular columns due to different arrangements", *Physica A : Statistical Mechanics and its Applications* 391 (10), 2936-2939
- 2012 SH Shah, Y Li, WS Khan, NA Din, R Chand, "Phase Transition in Quasi-Two-Dimensional Horizontally Driven Granular System", *Acta Physica Polonica-Series A General Physics* 121 (3), 699
- 2011 R Chand, A Qadir, S Qing-Fan, Z Ning, S Gang, "Anomalous increase of apparent mass in a silo due to percolation", *Chinese Physics Letters* 28 (9), 098301
- 2011 R Chand, ZA Memon, A Qadir, "Effects of Moving Side Walls on Confined Granular Packings", *Mehran University Research Journal of Engineering & Technology* 30 (3), 411-416
- 2009 R Chand, ZA Memon, A Qadir, "Effects of Moving Side Walls on Confined Granular Packings", *Mehran University Research Journal of Engineering & Technology* 30 (3)
- 2009 A Qadir, MA Shaikh, R Chand, "Experimental study of effective mass and fluctuations of different granular arrangements in a silo", *Mehran University Research Journal of Engineering & Technology*