CURRICULUM VITAE

DR. KHOKON HOSSEN

Professor (Grade 2)
Department of Physics and Mechanical Engineering
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Patuakhali Science and Technology University
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Personal Information

Surname: Hossen **First name**: Khokon

Permanent Address: 193 South Dariapur, Bhagalpur, Savar, Dhaka-1340, Bangladesh.

Type of identification document: NID **Document number:** 4160061000

Date of Birth: 07.04.1981 **Place of Birth:** Dhaka, Bangladesh

Gender: Male **Nationality:** Bangladeshi

Education

- PhD in Nuclear and Particle Physics, Faculty of Physics, University of Santiago de Compostela (USC), 15782 Santiago de Compostela, Spain. **Laboratory:** Max Planck Institute for Nuclear Physics (MPIK), Saupfercheckweg 1, 69117 Heidelberg, Germany, 2014-2018. Grade: 10 out of 10.

- Master´s in Nuclear and Particle Physics and their Technological and Medical Application, Faculty of Physics, University of Santiago de Compostela (USC), 15782 Santiago de Compostela, Spain, 2011-2012. Grade: 7.450 out of 10.

- Master´s in Physics, Department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh, 2004-2006. Grade: First Class (69.5 % marks).

- Bachelor of Science in Physics, Department of Physics, Jahangirnagar University, Savar, Dhaka Bangladesh, 2000-2004. Grade: First Class (62 % marks).

- Higher Secondary Certificate (HSC), Savar Cantonment Public School and College, Savar, Dhaka, Bangladesh, 1998. Grade: First Division (74.1 % marks).

- Secondary School Certificate (SSC), Shimulia S. P. High School, Savar, Dhaka, Bangladesh, 1996. Grade: First Division (75.2 % marks).

Experience (Academic, Administrative and Research):

- **Teaching Experience about 18 years** (2007-2024)

Joining:

As a Lecturer: From 01.03.2007 to 28.02.2010

As an Assistant Professor: From 01.03.2010 to 08.12.2014

As an Associate Professor: From 09.12.2014 to 08.12.2018

As a Professor: From 09.12.2018 to 08.12.2022

As a Grade 2 Professor: From 09.12.2022 to continue

Administrative and Research):

(i) **Director,** Teacher-Student Centre (TSC) from 19.08.2024 to continue.

(ii) **Chairman,** Department of Physics and Mechanical Engineering, PSTU from 2010 to 2011, 2012 to 2013 and 2018 to 2022.

Professional Organization:

(i) Assistant Organizing Secretary, UTAB, PSTU

(ii) Education and Research Secretary, White Panel, PSTU

Research Experience:

Current research project as Principal Investigator (PI):

Sl.	Title of Project	Source of Fund	Amount (Tk.)	Expected Date of Completion
01	Conversion of municipal solid waste to value added products- a circular economic approach for renewable power and organic fertilizer	Grant for advanced research in education (GARE), BANBEIS, Ministry of Education, Bangladesh.	19.95 Lac	30.06.2025

List of Completed Research Project(s) by Principal Investigator (PI) in the Last 5 Years:

Sl.	Title	Duration	Cost (Tk.)	Source of Funding
01	Synthesis and characterization of $La_{0.9}Sr_{0.1}Ga_{1-x}MnxO_3$(x = 0.1 0.2, 0.3, 0.4, 0.5) as anode materials for solid oxide fuel cells by solid state sintering method.	1 year (2023-2024)	3.00 Lac	MOST, Bangladesh
02	Assessment of essential, toxic and trace elements in dairy milk in Bangladesh.	1 year (2022-2023)	3.00 Lac	UGC, Bangladesh
03	Analysis of the Electrical Properties of a Net Metering Rooftop Solar Photovoltaic System.	1 year (2022-2023)	0.85 Lac	RTC, PSTU
04	Synthesis and characterization of $La_{0.9}Sr_{0.1}Fe_{0.7-x}Cu_xMo_{0.3}O_3$ (x=0.0, 0.05, 0.1, 0.15, 0.2) as electrode materials for solid oxide fuel cells.	1 year (2022-2023)	3.50 Lac	MOST, Bangladesh
05	Design and Performance Analysis of a Net Metering Rooftop Solar Photovoltaic System for an Academic Building in PSTU.	1 year (2021-2022)	2.5 Lac	MOST, Bangladesh.

06	Molecular orientation resolved (e, 2e) cross sections for CF_4 at 67 eV impact energy.	1 year (2021-2022)	0.70 Lac	RTC, PSTU.
07	Electricity Generation from Biomass by Pyrolysis Process	1 year (2020-2021)	2.0 Lac	MOST, Bangladesh.
08	Determination of trace elements in milk powder by neutron activation analysis (NAA) method.	1 year (2020-2021)	0.70 Lac	RTC, PSTU.
09	Assessment of marine contamination by neutron activation analysis (NAA) in Kuakata sea beach.	1 year (2019-2020)	0.70 Lac	RTC, PSTU.

Doctoral Researcher **2014-2018**

Division of Quantum Dynamics and Controls, Max-Planck-Institute for Nuclear Physics (MPIK), Saupfercheckweg 1, 69117 Heidelberg Germany.

(iii) Basic ideas of electron impact ionization and fragmentation of molecules, and small clusters at low electron impact energies.
(iv) Kinematically complete experiments are studied.

Title of PhD Thesis: "Kinematically complete experiments for electron induced break-up of small molecules and clusters".

Master Thesis **2011-2012**

Faculty of Physics, University of Santiago de Compostela, Spain.

Title of Master Thesis: "Analysis of the Performances of Sealed Timing Resistive Plate Chambers (tRPCs)".

List of Research Publications

Journal Articles:

(1) Xueguang Ren, **Khokon Hossen,** Shaokui Jia, Jiaqi Zhou, Xiaorui Xue, Thomas Pfeifer, and Alexander Dorn. An electron-electron-ion triple-coincidence experiment of electron-initiated valence ionization of small water clusters. *Physical Review A.* Accepted: 9 September 2024.

(2) Humaira Takia, Rahman Moshiur, and **Khokon Hossen**. Study of Reaction Channels of CO_2 Molecule by Electron Impact Ionization at Low Energy. Jahangirnagar Physics Studies, *Journal of the Department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh*. ISSN: 1999-6632, Volume: 24, June 2024.

(3) Humaira Takia, Rahman Moshiur, and **Khokon Hossen**. Study of Aligned Fully Differential Cross Section at Low Energy Electron Impact Ionization of Molecular Hydrogen. Jahangirnagar Physics Studies, *Journal of the Department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh*. ISSN: 1999-6632, Volume: 24, June 2024.

(4) Rahman Moshiur, Khairul Islam, Humaira Takia, **Khokon Hossen**, Moinul Islam, Satyajit Ghose. Characterization of Radio-Waste from TRIGA II Research Reactor and Assessment of Corresponding Radiation Dose in Bangladesh, *Engineering and Applied Sciences*. Volume 8, Issue 4, August 2023, pp. 66-71. doi: 10.11648/j.eas.20230804.11.

(5) **Khokon Hossen**, Humaira Takia, H. M. Arshad, Md. Naimur Rahman, Md. Bellal Hossain, Muhammad Masudur Rahaman. Design and Performance Analysis of Rooftop Solar Photovoltaic (PV) System with Net Metering Mechanism for PSTU Academic Building. *J. Patuakhali Sci. & Tech. Uni.* 2022, Vol 12 (1 & 2).

(6) Muhammad Masudur Rahaman, Humaira Takia, Md. Kamrul Hasan, Md. Bellal Hossain, Shamim Mia and **Khokon Hossen**. Application of Advection Diffusion Equation for Determination of Contaminants in Aqueous Solution: A Mathematical Analysis. *Applied Mathematics and Physics*. 2022; 10(1):24-31. doi: 10.12691/amp-10-1-2.

(7) Kamrul Hasan, Humaira Takia, Muhammad Masudur Rahaman, Mehedi Hasan Sikdar, Bellal Hossain**, Khokon Hossen**. Numerical Study of the Characteristics of Shock and Rarefaction Waves for Nonlinear Wave Equation. American Journal of Applied Scientific Research. Vol. 8, No. 1, 2022, pp. 18-24. doi: 10.11648/j.ajasr.20220801.13.

(8) Humaira Takia, Md. Afjalur Rahman, Rahman Moshiur, M.M. Rahaman, and **Khokon Hossen**, "The Substantive Characteristics of Layered PbX (X=S, Se, and Te) Compounds: An ab-inito Investigations." International Journal of Physics, vol. 10, no. 2 (2022): 102-110. doi: 10.12691/ijp-10-2-3

(9) Xing Wang, Hongjing Yang, **Khokon Hossen**, Alexander Dorn,and Xueguang Ren. An (e, 2e + ion) study of electron-impact ionization and fragmentation of carbon dioxide clusters. *Journal of Physics B: Atomic, Molecular and Optical Physics,* 54, 075201(2021).

(10) **Khokon Hossen**, Humaira Takia, Mohammad Jamal Hossain, Muhammad Masudur Rahaman, Md. Bellal Hossain, H.M. Arshad and Md. Moshiur Rahman. Evidence of Resonance Structure at Around 35 eV for CF_2^+ Ion at Low Energies Electron Impact Ionization of CF_4. *Jahangirnagar Physics Studies, Journal of the Department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh*. ISSN: 1999-6632, Volume: 23, Page: 15-26, June 2020.

(11) Humaira Takia, Md. Afjalur Rahman, A.K.M. Shafiq Ullah, Muhammad Masudur Rahaman, Md. Bellal Hossain, Md. Moshiur Rahman, and **Khokon Hossen**. The Structural, Elastic, Electronic and Optical Properties of Tin Telluride (SnTe): A First-Principles Study. *Jahangirnagar Physics Studies,*

Journal of the Department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh. ISSN: 1999-6632, Volume: 23, Page: 65-76, June 2020.

(12) **Khokon Hossen**, Xueguang Ren, Enliang Wang, Maomao Gong, Xingyu Li, Song Bin Zhang, Xiangjun Chen, and Alexander Dorn. Triple-differential cross sections for single ionization of CO_2 by 100 eV electron impact. *Journal of Physics B: Atomic, Molecular and Optical Physics*, 51 (21): 215201, 2018. doi. 10.1088/1361-6455/aae0ab.

(13) **Khokon Hossen**, Xueguang Ren, Enliang Wang, S.V.K. Kumar, and Alexander Dorn. An (e, 2e+ion) study of electron-impact ionization and fragmentation of tetrafluoromethane at low energies. *The European Physical Journal D (EPJD)*, 72:43, 2018. doi:10.1140/epjd/e2017-80665-8.

(14) Xingyu Li, Xueguang Ren, **Khokon Hossen**, Enliang Wang, Xiangjun Chen, and Alexander Dorn. Two-center interference in electron-impact ionization of molecular hydrogen. *Physical Review A*, 97(2): 022706, 2018. doi:10.1103/PhysRevA.97.022706.

(15) M. Moshiur Rahman, **Khokon Hossen**, M Arifur Rahman, M A Kabir, S M Hossain and S. M Azharul Islam. Assessment of marine contamination by Neutron Activation Analysis in Bangladesh. *International Journal of Scientific & Engineering Research*, Volume 9, Issue 2, February-2018, ISSN 2229-5518. doi:https://www.ijser.org/researchpaper/Assessment-of-marine-contamination-by-Neutron-Activation-Analysis-in-Bangladesh.pdf.

(16) Xueguang Ren, **Khokon Hossen**, Enliang Wang, M S Pindzola, Alexander Dorn and James Colgan. Analysis of multiple scattering contributions in electron-impact ionization of molecular hydrogen. *Journal of Physics B: Atomic, Molecular and Optical Physics*, 50(20): 204002, 2017. doi: 10.1088/1361-6455/aa8b4a.

(17) Xueguang Ren, Sadek Amami, **Khokon Hossen**, Esam Ali, Chuan Gang Ning, James Colgan, Don Madison, and Alexander Dorn. Electron-impact ionization of H_2O at low projectile energy: Internormalized triple-differential cross sections in three-dimensional kinematics. *Physical Review A*, 95(2): 022701, 2017. doi: 10.1103/PhysRevA.95.022701.

(18) **Khokon Hossen**. Analysis of the Performances of Sealed Timing Resistive Plate Chambers (tRPCs). *International Journal of Physics, Science and Education Publishing, Newark*, Delaware -19713, USA. ISSN (Print): 2333-4568, ISSN (Online): 2333-4576, Volume: 2, No. 4, Page: 105-108, 2014.

(19) **Khokon Hossen**. Radiological Content of Brown Nuts by Using a High Resolution Gamma Spectroscopy. *Journal of Advanced Physics, American Scientific Publishers*, 26650, The Old Road, Suite

208, Valencia, California 91381-0751, USA. ISSN: 2168-1996 (Print), EISSN: 2168-2003 (online), Volume: 1, No.2, Page: 113-119, 2012.

(20) **Khokon Hossen**, H.M. Arshad, M.B. Hossain, M.A. Masud and M.J. Hossain. Ocean Wave Energy Conversion and Wave Energy Calculation. *Bangladesh Journal of Progressive Science and Technology, Bangladesh*. ISSN: 1609-5260. Volume: 9 No. 2, Page:233-236, July 2011.

(21) M.B. Hossain, **Khokon Hossen**, H.M. Arshad, M.J. Hossain and M.A. Masud. Effect of viscous dissipation with magneto hydrodynamic flow on the coupling of conduction and free convection along a vertical flat plate. *Bangladesh Journal of Progressive Science and Technology, Bangladesh.* ISSN: 1609-5260. Volume: 9 No. 2, Page: 225-228, July 2011.

(22) M.J. Hossain, **Khokon Hossen**, H.M. Arshad, M.A. Masud and M.B. Hossain. Reduction of energy consumption in wireless sensor networks throughout active nodes optimization. *Bangladesh Journal of Progressive Science and Technology, Bangladesh*. ISSN: 1609-5260. Volume: 9 No. 2, Page: 229-232, July 2011.

(23) **Khokon Hossen**, H. M. Arshad and M. J. Hossain. Design and Construction of A Metal Detector circuit and study of Its Working Principle. *Jahangirnagar Physics Studies, Journal of the Department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh*. ISSN: 1999-6632, Volume: 17, Page: 139-149, 2011.

(24) M.A. Masud, Tauhidul Islam, **Khokon Hossen** and M.B. Hossain. Comparing the impact of fading and noisy channel for radio signal propagation. *Jahangirnagar Physics Studies, Journal of the department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh.* ISSN: 1999-6632, Volume: 16, Page: 39 -49, 2010.

(25) Md. Rashidul Haque, S.M. Hossain, S.M. Azharul Islam and **Khokon Hossen**. Determination of Trace Element Concentrations in Cigarette Tobacco by Instrumental Neutron Activation Analysis(INAA). *Jahangirnagar Physics Studies, Journal of the Department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh*. ISSN: 1999-6632, Volume 15, Page: 43-48, 2009.

(26) **Khokon Hossen** and H.M Arshad. Design and Construct ion of A Remote control fan regulator circuit and study of Its Working Principle. *Jahangirnagar Physics Studies, Journal of the Department of Physics, Jahangirnagar University, Savar, Dhaka, Bangladesh*. ISSN: 1999-6632, Volume: 15, Page: 61-66, 2009.

(27) **Khokon Hossen**, M.M. Rahaman and M.B. Hossain. Medium and Long-Term Side Effects of Radiation Therapy on Human Body. *Journal of Socioeconomic Research and Development (JSRD), g-Science Publication, Dhaka, Bangladesh.* February-2009. ISSN 1813-0348, Volume: 6, Issue-1, Page: 515-519, 2009.

(28) **Khokon Hossen**, M.J. Hossain, M.K.H. Chowdhury, M.H. Bellal and M.M. Rahman. Multiple Channel Digital Data Transmission over Power Line Carrier Communication. *IJET, g-Science Publication, Dhaka, Bangladesh*. ISSN: 1812-7711, Volume: 5, Issue-2, Page: 251-256, 2008.

(29) A.K.M. Zakaria, **Khokon Hossen** and M.A. Saeed Khan. Study of the Atomic and Magnetic Structure of Spinel Oxide $Zn0.6Ni0.4FeCrO_4$ at Room Temperature using Neutron Diffraction Technique. *Jahangirnagar Journal of Science, Savar, Dhaka, Bangladesh*. June 2007, Vol.30, No.1, Page: 55 -65, 2007.

Conference Papers:

(i) Xueguang Ren, **Khokon Hossen**, Xingyu Li, Xiangjun Chen and Alexander Dorn. Search for Young-Type Interferences in (e, 2e) Reactions on H_2 Molecules with Known Spatial Alignment. Conference paper of 12th European Conference onAtoms Molecules and Photons (ECAMP12) in Frankfurt, Germany from September 5-9, 2016.

(ii) **Khokon Hossen**, Alexander Dorn and Xueguang Ren. Molecular alignment resolved (e, 2e) cross sections for H_2 at 38 eV impact energy. Conference paper of XXIX International Conference on Photonic, Electronic, and Atomic Collisions (ICPEAC), IOP Publishing, Journal of Physics: Conference Series 635(2015) 072080. doi: 10.1088/1742-6596/635/7/072080.

(iii) Alexander Dorn, Xueguang Ren, Xingyu Li, **Khokon Hossen** and Xiangjun Chen. A thorough study of Young-type interferences in (e,2e) on H_2 molecules with known spatial alignment. Conference paper of International Symposium on (e, 2e), Double Photo-ionization and Related Topics and 18th International Symposium on Polarization and Correlation in Electronic and Atomic Collisions inDonostia-San Sebastian(Basque Country), Spain from 30.07.2015 to 01.08.2015.

(iv) Alexander Dorn, **Khokon Hossen**, Xueguang Ren, Thomas Pflüger, Marvin Weyland. Novel Studies of Electron-Impact Induced Ionization of Atoms, Molecules and Clusters. Conference paper of XIXth Symposium on Atomic, Cluster and Surface Physics 2014 (SASP 2014), February 8 – 14, 2014 in Obergurgl, Austria.

Poster Presentation

Khokon Hossen, Alexander Dorn, and Xueguang Ren. Molecular alignment resolved (e, 2e) cross sections for H_2 at 38 eV impact energy. *XXIX International Conference on Photonic, Electronic and Atomic Collisions*, Toledo, Spain, from 22.07.2015 to 28.07. 2015.

Khokon Hossen, Xueguang Ren, S. V. K. Kumar, and Alexander Dorn. (e, 2e + ion) study of electron-impact ionization and fragmentation of tetrafluoromethane at low energies (E_0 = 35.7 eV, 38 eV, 45 eV and 67 eV). The Deutsche Physikalische Gesellschaft (DPG) Frühjahrstagung (Spring Meeting) of the Section AMOP (SAMOP), Mainz, Germany, from 06.03.2017 to

10.03.2017.

Khokon Hossen, Xueguang Ren, and Alexander Dorn. Molecular frame (e, 2e + ion) studies of CF_4. The 49th Conference of the European Group on Atomic Systems (EGAS), Durham University, United Kingdom (UK), from 17.07.2017 to 21.07.2017.

Khokon Hossen, Xueguang Ren, and Alexander Dorn. Molecular frame (e, 2e + ion) studies of CF_4. The 30th International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC XXX), Cairns, Australia, from 26.07.2017 to 01.08.2017.

List of participated conferences/workshops/seminars:

1. Workshops on “Fundamental Quantum Dynamics and Control” in Neunkirchen, Germany from 07.09.2017- 08.09.2017.
2. The 49th Conference of the European Group on Atomic Systems (EGAS) in theDurham University, United Kingdom (UK) from 17.07.2017 to 21.07.2017.
3. The Deutsche Physikalische Gesellschaft (DPG) Frühjahrstagung (Spring Meeting) of the Section AMOP (SAMOP) in Mainz, Germany from 6.03.2017 to 10.03.2017.
4. Workshops on "Structure and Dynamics of Atoms and Molecules (SDAM)", inNeunkirchen, Germany from 27.06.2016 to 28.06.2016.
5. The Deutsche Physikalische Gesellschaft (DPG) Frühjahrstagung (Spring Meeting) of the Section AMOP (SAMOP) in Hannover, Germany from29.02.2016 to 04.03.2016.
6. MPIK-Science Workshop at MPIK, Heidelberg, Germany on 24.09.2015.
7. The XXIX International Conference on Photonic, Electronic, and Atomic Collisions (ICPEAC2015) in Toledo, Spain from 22.07.2015 to 28.07. 2015.

In addition, I have attended a number of group seminars at MPIK, seminars at MPIK, Heidelberg, Germany.

Fellowship and awards

(i) DFG (German Research Foundation), and Max-Planck Society: For 2 years

Fellowship to PhD research at the Max Planck Institute for Nuclear Physics Saupfercheckweg1, 69117 Heidelberg, Germany.

(ii) Erasmus Mundus Mobility with Asia (EMMA): For 3 years

Fellowship to PhD research at the Max Planck Institute for Nuclear Physics Saupfercheckweg1, 69117 Heidelberg, Germany.

(iii) Exchange by Promoting Quality Education, Research & Training in South & South-East Asia (EXPERTS): For 1 year

Fellowship to study Master´s in Nuclear and Particle Physics and their Technological and Medical Application at the University of Santiago de Compostela, Spain.

Technical skills and competences

Programming language: Origin lab, Go4 analysis software, C/C++/Visual C++, Scilab, Matlab, Root, Geant4, Python.

Operating System: Windows, Vista, Linux.

Application: Microsoft office suite, Macromedia Flash, Adobe Photoshop.

Languages

Bengali: Mother Tongue
English: Good
Spanish: Poor
Arabic: Fair

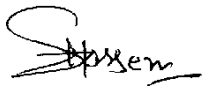
References

(i) Professor Dr. M. Salahuddin, Department of Physics, Jahangirnagar University Savar, Dhaka-1342, Bangladesh. Mobile: 01712927210, E-mail: su_2960@juniv.edu

(ii) Professor Dr. Md. Abu Saeed Khan, Department of Physics, Jahangirnagar University, Savar, Dhaka-1342, Bangladesh. Cell Phone: 01759188894, E- mail: maskhan@juniv.edu

(iii) Mohammad Jamal Hossain, Department of Computer Science and Information Technology, Faculty of Computer Science and Engineering, Patuakhali Science and Technology University, Dumki, Patuakhali-8602, Bangladesh. Cell Phone: 01760337440, E-mail: jamalpstu07@gmail.com

I, the undersigned officially state that in accordance with my acquaintance and certainty thisCV correctly describes my qualifications and myself in the approved manner.



Signature Date: 01.10.2024