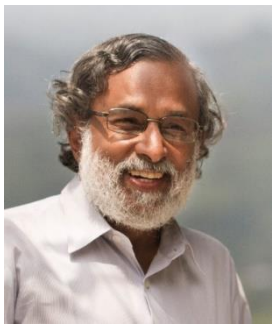
Khondkar Siddique-e Rabbani



Addresses of present affiliations:

1. Department of Biomedical Physics & Technology (BMPT)
   Room 16, Curzon Hall building, University of Dhaka, Dhaka-1000, Bangladesh
2. BiBEAT Limited, Apt: 11/C, Square Tower, 36/6 Basundhara Lane, Mirpur Road (near Science Lab), Dhaka 1205, Bangladesh (a spinoff of BMPT-DU)
3. Relevant Science & Technology Institute, Apt: 11/C, Square Tower, 36/6 Basundhara Lane, Mirpur Road (near Science Lab), Dhaka 1205, Bangladesh.

email: rabbani@du.ac.bd, rabbani@bibeat.com, ksrabbani@gmail.com

Personal mobile phone: +880 1817 022 834

Date of Birth: 9 May 1950; **Sex:** Male; **Nationality:** Bangladeshi;

Personal status: Married with two children.

PRESENT POSITIONS:

- ***2022-present: Member,*** Strategic and Technological Advisory Group for Medical Devices of WHO
- ***2015 – present: Founder Director,*** Dhaka University Telemedicine Programme (DUTP), organized by the Department of Biomedical Physics & Technology (BMPT), University of Dhaka. DUTP is a dissemination activity of relevant R&D outcomes of the department.
- ***2016 – present: Honorary Professor***, Department of Biomedical Physics & Technology (BMPT), University of Dhaka, Dhaka, Bangladesh (post-retirement, on yearly contract).
- ***2013 – present: Founder President,*** BIBEAT Ltd., a non-shareholding social enterprise, a 'Company limited by guarantee', to commercially manufacture and distribute indigenous technology based products, focusing on medical, health and wellness devices.
- ***1996 – present: Founder President***, Relevant Science & Technology Society, Bangladesh (RSTS).

PAST POSITIONS/ PROFESSIONAL ACTIVITY

At Academic Institutions:

1. 2015 – 2016, Professor, Department of Biomedical Physics & Technology (BMPT), University of Dhaka (1 year leave on full pay, post retirement)
2. 2008 – 2015: Professor and Founding Chairperson, Department of Biomedical Physics & Technology (BMPT), University of Dhaka
3. 1988 – 2008: Professor, Department of Physics, University of Dhaka
4. 1985 – 1988: Associate Professor, Department of Physics, University of Dhaka
5. 1978 – 1985: Assistant Professor, Department of Physics, University of Dhaka
6. 1974 – 1978: No work [PhD studentship under Commonwealth Scholarship in the UK]
7. 1973 – 1974: Lecturer of Physics, Residential Model College, Dhaka

At Other institutions, Societies, Commercial units:

1. 2010-2015: President, Bangladesh Medical Physics Association (BMPA)
2. 1996 – 2013: Founder Director, Bangladesh Institute for Biomedical Engineering and Appropriate Technology (BIBEAT), under (RSTS). The institute was terminated in 2013 to initiate BIBEAT Ltd.
3. 2001-2002: Director in-Charge, Grameen Bitek Ltd., a joint venture of Bitek group with Grameen Fund, a sister organ of Nobel laureate 'Grameen Bank'.

4. 1998-2001: Co-Founder and Adviser, Grameen Bitek Ltd.
5. 1993-1998: Founding Director, Bangladesh Innovative Technology Group (Bitek) (terminated in 1998 to establish Grameen Bitek Ltd).
6. 1989-1992: Founding Director, Bangladesh Electronic Projucti Kendro (BAEPRO) [English translation of Bangla 'Projucti Kendro': Technology Centre]

VISITING/ PART TIME POSITIONS

1. 2006-2007: Visiting Professor, Electrical and Electronic Engineering Department, Islamic University of Technology (IUT - an organ of the Organisation of Islamic Conference - OIC), Gazipur, Bangladesh.
2. 1997 (one month): Visiting Professor, Department of Electrical Engineering, IIT Kanpur, Kanpur, India
3. 1989-1991: Part time teacher in Electrical and Electronic Engineering Dept, International Centre for Technical and Vocational Training and Research (ICTVTR), Gazipur, Bangladesh (an organisation of OIC), Bangladesh.

SKILLS and EXPERTISE

- Electronic Circuit Design - Analogue and Digital
- Microcomputer Interfacing for data acquisition -Hardware & Software
- Computerised instrumentation
- Telemedicine technology using internet
- Medical Physics & Bio-Medical Engineering: Electro-physiological Investigations - Nerve Conduction Studies, Electrical impedance measurements of body tissues in vivo, Therapy using electromagnetic fields and electrical currents.
- Computer programming - Assembly, Basic, C languages
- Instrumentation for Low cost research and laboratory equipment
- Solar water heating devices, Drinking water Pasteurisation
- Small Scale manufacture of Electronic, Electro-medical and allied technology based equipment
- Light Engineering and Electronics small Industry issues
- Microelectronics (Semiconductor device fabrication technology, worked during PhD period only)

SCIENTIFIC INNOVATION

1. ***A new Nerve conduction mechanism***, for propagation of action potential in myelinated nerve fibres through the introduction of a new nodal resistance at the nodes of Ranvier that acts the major determining factor for conduction of action potentials, contributing to a significant improvement in the almost 150 year old cable theory of nerve conduction.
2. ***Distribution of F-Latency (DFL),*** a new parameter in nerve conduction measurement to give conduction velocity profile of motor nerves and early detection of neural contribution to neck and back pain (cervical and lumbo-sacral radiculopathy and myelopathy)
3. ***Focused Impedance Method (FIM), Pigeon Hole Imaging (PHI) and 6-electrode TPIM*** as tools for Physiological study and Medical Diagnosis, based on the principles of electrical impedance

RESEARCH & PRODUCT INNOVATION (AS LEADER):

Note: I have a philosophy of not taking patents, particularly on healthcare devices, to deliver the benefits of modern technology to the deprived majority of the humankind. I only obtained a patent on a power line protecting device (the last item below) in 1994 after which I had the above realization and stopped applying for patents.

1. Negative Pressure Isolation Canopy on Bed (NPICoB), for preventing airborne pathogens from a patient to infect the surrounding air in a hospital, particularly in ICUs, protecting healthcare providers and minimising cress infection among patients.
2. Positive Pressure Isolation Canopy on Bed (PPICoB), for preventing airborne pathogens from the surrounding air to infect a vulnerable patient in a hospital, particularly in ICUs, burn units and neonatal units.
3. Ultraviolet Room disinfecting tower with almost 360^0 coverage using 254nm UV-C tube lamps for any indoor space, particularly for hospitals.
4. Telemedicine via internet, with locally developed diagnostic equipment using both PC and mobile phones. [Digital diagnostic equipment already developed: Electronic Stethoscope and ECG (12 lead)]
5. Instrumentation for healthcare devices and laboratory equipment for education and research, including Computerised instrumentation (separate list of items already manufactured for commercial distribution through BiBEAT Ltd – https://bibeat.com/)
6. Domestic scale Solar Pasteurisaton devices at low cost for providing safe drinking water to rural areas of low resource countries and in emergencies.
7. Device for protection of electrical appliances from power line abnormalities (continuous high and low voltages, high voltage spikes and surges, frequent voltage fluctuations, a patent was obtained in 1994).

STUDENTS SUPERVISED

- PhD: 8, M.Phil: 10, M.S.: More than 100

PUBLICATIONS (details given separately – ***Annexure-1***):

- Books: 2
- Book Chapters: 11 chapters in 7 books
- Popular articles (newspapers, etc.): 16
- Journal publications and Conference Proceedings, Peer reviewed: 137
- Patents: 1 (in 1994, decided not to apply any further, cause mentioned above)
- ***Google Scholar scores*** *(as on 23 October, 2024):* Citations: 1354, h-index: 19, i10-index: 39

INVITED TALKS (details given separately – ***Annexure-2***):

- Total: 173; Foreign: 51, National: 122

ENTREPRENEURSHIP EFFORTS

1. 1989: Established Bangladesh Electronic Projucti Kendro (BAEPRO) [English of Bangla 'Projucti Kendro': Technology Centre], a small endeavour to develop and to carry out trial marketing of innovative electronic products developed under my leadership, starting with virtually 'zero' capital. After initial success, in 1992, it was transformed to BAEPRO Ltd., a company having majority share and management of another person. In 1993 the whole company was transferred to this person. He eventually could not succeed and the company closed down later.

2. 1993: Established Bangladesh Innovative Technology Group (Bitek), on a partnership basis, under my leadership. Following its huge success it was terminated in 1998 to establish a joint venture company, Grameen Bitek Ltd (mentioned next).
3. 1998: Established 'Grameen Bitek Ltd.', a joint venture of Bitek with Grameen Fund. The latter is a sister organ of Nobel Prize winning Microcredit Organisation, 'Grameen Bank'. Management was taken up by Grameen Fund but they failed suffering heavy losses. At this point they handed over the management to me temporarily.
4. 2001: Director in-Charge, Grameen Bitek Ltd., as described above and I succeeded in making the company a profit earning one within a few months. Dissociated from this organization in 2002 due to differences with Grameen Fund, the majority partner.
5. 1996: Established Bangladesh Institute for Biomedical Engineering and Appropriate Technology (BIBEAT) under the society 'RSTS' for carrying out R&D and pilot marketing of medical and healthcare products. It was terminated in 2013 to form BIBEAT Ltd (next item).
6. 2013: Established BIBEAT Limited under my leadership, a non-shareholding social enterprise, a 'Company limited by guarantee', to commercially manufacture and distribute indigenous technology based products, focusing on medical, health and wellness devices. BIBEAT already received three national awards as mentioned under 'Awards' heading.

[***Important lesson learnt through above efforts: The technology innovator should be the decision maker in the management of any innovative technology based industry***]

SPONSORS AND GRANT SOURCES FOR RESEARCH

International, <u>myself as the key researcher</u>

1. British Overseas Development Agency:1983-1992, academic link programme.
2. World Health Organisation (WHO): 1985 (one year) through BIRDEM, Dhaka.

International, <u>myself as the Project Lead at the University of Dhaka</u>

1. International Science Programme, Uppsala University (since January 2011, SEK 5,770,000 till December 2022) for specific research projects and dissemination.
2. UNESCO (2011, US$14,000) for dissemination of safe drinking water technology.
3. Information Society Innovation Fund – Asia (Australia based, 2015-16, AUD 30,000) for developing mobile phone based Telemedicine system with integrated diagnostic devices
4. Swedish Research Council (for a collaborative research), Jan 2017 to March 2019: USD 17,280 for Bangladesh part (myself as the Project lead for the Bangladesh segment)

Local, <u>myself as the Project Lead</u>

1. Renewable Energy Centre, Dhaka University (Different amounts at different periods)
2. Bose Centre for Advanced Studies, Dhaka University (Different amounts at different periods)
3. Ministry of Science and Technology, Bangladesh Government. (Different amounts at different periods)
4. Ministry of Education, Bangladesh Government (2010-13, US$ 31,000)
5. Akij Food and Beverages Ltd., Bangladesh (2011-12, US$ 7,500), for R&D on telemedicine
6. Beximco Pharmaceuticals Ltd., Bangladesh (2014-17, US$ 20,000) for R&D on prosthetic hand and telemedicine
7. Access to Information, a programme of Government of Bangladesh (2015-16, US$ 38,500) for field trial of indigenous telemedicine technology

8. Edward M Kennedy Centre, Bangladesh, (2017, US$10,000), for field trial of mobile phone based telemedicine technology.
9. Access to Information, a programme of Government of Bangladesh (2018-19, US$ 15,400) for developing 'Stream powered hill irrigation' a challenge fund received by RSTS.
10. Access to Information, a programme of Government of Bangladesh (2019-20, US$ 29,500) for developing Functional Electrical Stimulation to correct Footdrop.
11. Startup Bangladesh Idea Project Fund of the ICT Ministry of the Government (2018, US$ 12,000) for BiBEAT Ltd.

EDUCATION

- Ph.D. Electronics (Specialisation: Microelectronics), 1978, from Southampton University, U.K.
- M.Sc., Physics. 1972, from Quaid-i- Azam University, Pakistan (1st class, second position)
- B.Sc. Hons, Physics, 1970, from University of Dhaka, Bangladesh (1st class, 1st position)

TRAINING

Expertise and experience in Medical Physics, Bio Medical Engineering and Computer interfacing obtained through own research at home institution since 1978 and through a ten-year (1983-1992) academic exchange and collaborative research programme with the Department of Medical Physics and Clinical Engineering, Sheffield Health Authority and University, UK (sponsored by British ODA). Training in Microprocessor controlled instrumentation at Abdus Salam International Centre of Theoretical Physics (ICTP), Trieste, Italy at a one month college in 2004. Training on entrepreneurship through several workshops in Bangladesh during 1989-2000.

MEMBERSHIPS

International:

1. Member, Health Technology Task Group of International Union of Physical & Engineering Sciences in Medicine (IUPESM-HTTG) (2012-2015)
2. Member, IEEE Engineering in Medicine and Biology Society (1992-2003).
3. Junior Associate, International Centre for theoretical Physics (ICTP), Trieste, Italy. (1982-1990)
4. Collaborator member, IFMBE Clinical Engineering Division (CED). [CED works closely with the World Health Organization-WHO around medical devices and digital health].

National:

1. Life Member, Bangladesh Medical Physics Association
2. Life Member, Bangladesh Electronics Society.
3. Life Member, Bangladesh Physical Society.
4. Life Member, Bangladesh Renewable Energy Society
5. Life Member, Bangladesh Clinical Neuro-Electro-Physiologists' Society
6. Adviser, Bangladesh Electrical Merchandise Manufacturers' Association, since 2012.
7. Founder Chief Adviser, Bangladesh Electronic Innovative Manufacturers; Association, since 2003.
8. Member, National Task Force for SME development, Bangladesh, (2003-2004).
9. Honorary Consultant, Bangladesh Institute for Research & Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), Dhaka (1985-90).

AWARDS, HONOURS, PRIZES (for projects led by me)

1. 3rd Prize, Dhaka University Research Innovation Fair-2024, for work on Telemedicine.
2. Winner, HSBC Business Excellence Award, 2022, 'Best in Innovation & Technology' [BiBEAT Ltd]
3. Winner, IDLC-Prothom Alo SME Award, 2021, Health [BiBEAT Ltd]
4. Winner, IDEA Start-up Award, 2018 (ICT Division, Govt. of Bangladesh) [BiBEAT Ltd]
5. Winner in 'Telemedicine' category at the 3rd Commonwealth Digital Health Award-2018, held in Colombo, Sri Lanka [Dhaka University Telemedicine Programme]
6. Championship in 'e-Health' category at World Summit of the Information Societies – 2017, Geneva for Dhaka University Telemedicine Programme (award received in the name of Access to Information –a2i- a project of the Prime Minister's Office of Bangladesh who had supported our programme)
7. Certificate of Recognition as a Finalist in Manthan South Asia award, 2016, for Dhaka University Telemedicine Programme
8. Winner, Brac-Manthan award-2016, in e-Health category for Dhaka University Telemedicine Programme
9. Certificate of recognition as a finalist in National e-award 2010, Bangladesh, in e-health category.

AWARDS, HONOURS, PRIZES (personal)

1. Lifetime Achievement Award, Bangladesh Medical Physics Association, 2019.
2. Razzak-Shamsun Lifetime Achievement Award (managed by University of Dhaka) for outstanding contributions in Physics, 2014.
3. Bangladesh Academy of Sciences (BAS) Gold Medal Award for Physical Sciences, Senior group, 2008 (given in 2011).
4. Ibrahim Memorial Gold Medal Award, Dhaka University, for 2007-8.
5. UGC Award for best paper, 2007.
6. National Fellowship of the Asiatic Society of Bangladesh (1995).
7. Third World Academy of Science (TWAS) - Bangladesh Academy of Sciences (BAS) Gold Medal Award for Physical Sciences, Junior group, 1990.
8. Junior Associate of the International Centre for Theoretical Physics (ICTP), Trieste, Italy, 1983-1993.
9. Commonwealth Scholarship in 1974 for post graduate studies leading to Ph.D. in U.K.
10. First prize (Colour) and Second prize (Black & White), National Photo Contest of the Islamic Foundation, Bangladesh, 1980 (Subject: "Mosques").
11. Third prize, National Photo Contest of the Bangladesh Photographic Society, 1979 (Subject: "People at work").
12. First prize in Pakistan National science Fair, University Group, 1970 for a project on a Radio Controlled Walking Robot.
13. First prize in a nationwide (erstwhile East Pakistan) essay contest on "Quran- as the charter of peace", in 1969.
14. First prize in East Pakistan Science Fair, University Group, 1968 for a project on Radio controlled system.

ORGANISING EFFORTS

1. I led the institution of an Award named, 'Science for Mankind' for young people, by the Department of Biomedical Physics & Technology, University of Dhaka, Edward M Kennedy Centre, Dhaka, Dhaka University Science Society and Relevant Science & Technology Society, Bangladesh.
2. Chair, Scientific Committee, International Conference on Physics in Medicine and Clinical Neuro-electrophysiology (PMCN2017), March 10-11, 2017.

3. Member of organizing committee of a workshop on "Innovations in the Use of Mobile Devices in Healthcare", organized by HTTG-IUPESM at the World Congress on Medical Physics (IUPESM-WC 2015), Toronto, June 7-12, 2015.
4. Co-Chair, International Conference on Physics in Medicine and Clinical Neuro-electrophysiology (PMCN2015), February 19-20, 2015.
5. Conference Chair of the 'Regional Conference on Medical Physics (RCMP) – 2011' organized by BMPA and BMPT, and held at Dhaka University.
6. President, Bangladesh Medical Physics Association (BMPA), 2010-2015.
7. Organised a Research Exhibition of BMPT department on 1 July, 2010, on the auspices of Dhaka University Day. It is being held regularly every year since.
8. First Chairperson of the post graduate Department of Biomedical Physics & Technology (BMPT), University of Dhaka, since November, (2008-2015).
9. Co-ordinator of a Seminar on "University-Industry Interaction" organised by the British Council Bangladesh on 29 March, 2008 at Dhaka.
10. Organised a Short Course and Workshop on "Development of Indigenous capability in Medical Electronics", November 2007 at Islamic University of Technology (IUT), Gazipur. There was participation from six countries.
11. Founder and Chief Adviser, "Bangladesh Electronic Innovative Manufacturers' Association (BEIMA)", Founded: May 2003.
12. Convener, "National Electronics and IT Exhibition", jointly organised by Bangladesh Electronics Society and Ministry of Science and ICT, April, 2003, at Bangladesh-China Friendship Centre, Dhaka.
13. Founder Director, "Bangladesh Institute for Biomedical Engineering and Appropriate Technology (Bibeat)" -an organ of "RSTS, Bangladesh", 1996
14. Founder President, "Relevant Science and Technology Society (RSTS), Bangladesh", 1996
15. Founder and Adviser, "Grameen Bitek Ltd." - a company for commercialisation of locally developed Electronic products, jointly with Grameen Fund (a sister organisation of famous Grameen Bank),1998-2002.
16. Founder and Adviser, "Bangladesh Innovative Technology Group (Bitek)" - a group for commercialisation of locally developed Electronic products, 1993-1997.
17. Founder and Adviser, "BAEPRO Ltd." - a company for commercialisation of locally developed Electronic products, 1992-1993..
18. Founder and Director, "Bangladesh Electronic Projucti Kendro (BAEPRO)- a centre for R&D and commercialisation of locally developed Electronic products, 1989-1992.
19. Course Director, Electronics Assembly Course, 22-24 June 1987, jointly organised by Bangladesh Small and Cottage Industries Corporation and Hardy Electronics, Dhaka.
20. Organiser of "International folk evening" - an event of international music at Southampton University, UK, 1976 and 1977. **Annexture-1**

PUBLICATIONS (as on 29 August, 2022)

BOOKS

1. **K Siddique-e Rabbani,** A logical exposition of Electronics (Volume-1, Networks-DC & AC), a text book for B.Sc. level, Dhaka Viswavidyalay Prakashana Samshtha, University of Dhaka, Dhaka, Bangladesh, May, 2010. ISBN: 984-70283-0006-1.
2. **K Siddique-e Rabbani**, Electronics Pathshala (Electronics School, in Bangla), published by Aloghar Prakashana, Dhaka, Bangladesh. ISBN: 978-984-94243-9-0, Sept 2019.

BOOK CHAPTERS

3. **Rabbani K S**, Sarker M, Akond M H R and Akter T, Focused Impedance measurement (FIM) - A new technique with improved zone localisationin "Electrical Bioimpedance methods", Annals of the New York Academy of Sciences, Volume 873, p.408 to 420, 1999. published online: 6 FEB 2006 , DOI: 10.1111/j.1749-6632.1999.tb09490.x
4. **K Siddique-e Rabbani,** Chapter: *Computers (in Bangla language)*, in 'Chotoder Bishwakosh' (Children's Encyclopaedia) (2nd volume), published by Islamic Foundation, Bangladesh, 2001.
5. **K Siddique-e Rabbani,** Abdullah Al-Amin, Ahmed RaihanAbir, A K M Bodiuzzaman, Ahamad Imtiaz Khan, M Zihad Tarafdar, *A Rural Health Monitor with Telemedicine,* In: Ramesh R. Galigekere et. al. (eds), Biomedical Engineering, Narosa Publishing House, India, p. 77-82, 2011. ISBN: 9788184871951 8184871953
6. M ObaidurRahman and **K Siddique-e Rabbani,** *Synthesis of Evoked Nerve Action Potentials Considering Circulating Currents around a Depolarisation Zone,* In: Ramesh R. Galigekere et. al. (eds), Biomedical Engineering, Narosa Publishing House, India, p. 131-136, 2011. ISBN: 9788184871951 8184871953
7. **K Siddique-e Rabbani,** *Distribution of F-Latency (DFL) - a new nerve conduction parameter: Recent developments and possibilities,* In: Ramesh R. Galigekere et. al. (eds), Biomedical Engineering, Narosa Publishing House, India, p. 137-142, 2011. ISBN: 9788184871951 8184871953
8. **K Siddique-e Rabbani,** *Recent Developments and Prospects of Focused Impedance Method (FIM) For Biomedical Study*, In: Ramesh R. Galigekere et. al. (eds), Biomedical Engineering, Narosa Publishing House, India, p. 153-158, 2011. ISBN: 9788184871951 8184871953
9. **Rabbani K S**, 2011. *Pedograph (country of origin: Bangladesh),* in: WHO Compendium of new and emerging technologies that address global health concerns. http://apps.who.int/iris/bitstream/handle/10665/95786/WHO_HSS_EHT_DIM_11.02_eng.pdf?sequence=1, Page 21
10. Cari Borrás and **K Siddique-e Rabbani**, *Equipment and Physical Infrastructure*, In: Cari Borrás (Editor) Defining the Medical Imaging Requirements for a Rural Health Center, Springer Singapore, p. 77-94, 2017. ISBN: 978-981-10-1611-0 (Print) 978-981-10-1613-4 (Online)
11. **K Siddique-e Rabbani** and Trevor D Cradduck, *Tele-Imaging and Networking*, In: Cari Borrás (Editor) Defining the Medical Imaging Requirements for a Rural Health Center, Springer Singapore, p. 105-115, 2017. ISBN: 978-981-10-1611-0 (Print) 978-981-10-1613-4 (Online)
12. **K Siddique-e Rabbani,** *Focused Impedance Method: Basics and Applications*. In: Simini F., Bertemes-Filho P. (eds) Bioimpedance in Biomedical Applications and Research. Springer, Cham, pp. 137-185, 2018. https://doi.org/10.1007/978-3-319-74388-2_9, ISBN (Print): 978-3-319-74387-5
13. **K Siddique-e Rabbani**, Abdullah Al Amin, Zihad Tarafdar, Md. Abu Yousuf, AKM Bodiuzzaman, Ahmad Imtiaz Khan, Papia Chowdhury, Kamrul Hussain, Shahed Md. Abu Sufian, Maruf Ahmad, Md. Moniruzzaman, Ashir Ahmed, 2019. Dhaka University Telemedicine Programme, targeting healthcare-deprived rural population of Bangladesh and other low resource countries. C. Stephanidis (Ed.): HCII 2019, LNCS 11786, pp. 580-598. Springer. https://doi.org/10.1007/978-3-030-30033-3_45 .

EDITORIAL CONTRIBUTIONS:

1. Executive Editor, Bangladesh Journal of Medical Physics (BJMP) since 2011. BJMP is the official publication of the Bangladesh Medical Physics Association (BMPA), the national member of the International Organisation of Medical Physics (IOMP).

2. Proceedings of Short Course on Development of indigenous technological capability in Medical Electronics, 24 to 28 November 2007 at Islamic University of Technology (an organ of the Organisation of Islamic Conference), Bangladesh.

PUBLICATIONS IN PEER REVIEWED JOURNALS

Area-wise list:

BIO-MEDICAL PHYSICS/ ENGINEERING

1. **Rabbani K S** , Islam M S and Begum A, Direct measurement of induced currents in bone in vitro, Dhaka University Studies, B.XXX(2),191(1982).
2. Islam M S, **Rabbani K S** and Begum A, Resonance in bone due to electromagnetic fields. Dhaka University Studies, B, XXX(2),71(1982).
3. **Rabbani K S**, Design of an electromagnetic bone-healing stimulator, Dhaka University Studies, B, XXXIII,(1),89(1985)
4. Ahmed A N N, Islam K M N, Islam M S, **Rabbani K S** and Rahman M F, Effect of short term application of pulsing electromagnetic field (PEMF) on organs of rats, Bangladesh J. of Pathology, 1,(1986).
5. Muhsin A U M, Islam K M N, Ahmed A N N, Ahmed S, Hussain M, Sobhan A, Rahman S M, Islam M S and **Rabbani K S**, Experimental induction of nonunion in fractured rat tibiae: evaluation of different techniques, Bangladesh Journal of Pathology, 1,40(1986).
6. Ahmed A N N, Islam K M N, Rahman M F, Islam M S and **Rabbani K S**, Effect of electrical stimulation on the early phase of healing in induced fracture in rat tibiae, Bangladesh Medical Research Council Bulletin, XIII,No.2,69-79(1987).
7. Rabbani K S, Stevens J C, Wilson A J, and Cochrane T, Development of a microcomputerised electrophysiology system with signal averaging capability, J. of Bangladesh Academy of Sciences, 13,209(1989).
8. Muhsin A U M, Islam K M N, Ahmed A N N, Ahmed S, Islam M S, **Rabbani K S**, Rahman S M, Ahmed S, and Hussain M, Effect of pulsed electromagnetic field on healing of experimental nonunion in rat tibiae, Bangladesh Med. Res. Counc. Bull.,XVII,1-10(1991).
9. **Rabbani K S** and Kabir H, Studies on the effect of the third dimension on a two dimensional Electrical Impedance Tomography system, Clin Phy & Physiol Meas (UK), 12,393-402(1991).
10. Islam M S, **Rabbani K S**, Chakraborty K C, Huda A K M S, Ahmed F, Rahin A, Zaman S, and Ahsan A, Vibrational resonance technique for non-invasive determination of bone quality in vivo, J. of Bangladesh Acad. of Sciences, 16,199-205(1992).
11. **K S Rabbani**, S Huque, ABMH Kabir, AFM Salim and N Bano, Application of a new Electrical Impedance Tomography system in studying gastric emptying rates of severely malnourished children under diarrhoeal and non-diarrhoeal conditions, Bangladesh J. of Nutrition, Vol 8., Nos.1&2, p.45-50, 1995.
12. **Rabbani K S**, Hassan M, Kiber A, 3D object localisation using EIT measurement at two levels, Physiological Measurement (UK), vol.17, p.189-199, 1996
13. Shafiqul A. Sarker, Dilip Mahalanabis, Pradip K. Bardhan, Nur H. Alam, **Khondaker S. Rabbani,** Adnan Kiber, Moinuddin Hassan, Shafiqul Islam, George J. Fuchs and Klaus Gyr, Noninvasive Assessment of

Gastric Acid Secretion in Man (Application of Electrical Impedance Tomography (EIT)), Digestive Diseases and Sciences (Springer Netherlands), Vol. 42, N0.8, p.1804-1809, 1997

14. Syed A Sattar, Islam M S, **Rabbani K S**, Talukder M S, Pulsed Electromagnetic fields for the treatment of Bone fractures, Bangladesh Med. Res. Counc. Bull., Vol. 25, p. 6-10, 1999.
15. Baig T N and **Rabbani K S**, Synthesis of evoked compound nerve action potentials through development of a mathematical model for single fibre action potential, Bangladesh J. of Science & Technology, Vol.1, p.199-207, 1999.
16. Baig T N and **Rabbani K S**, Synthesis of evoked compound muscle action potentials through development of a mathematical model and comparison with real observations, Bangladesh J. of Science & Technology, Vol.2, p.217-224, 2000.
17. Afroj K, Alam N, Rahman M and **Rabbani K S**, Pigeon hole imaging (PHI) – an electrical admittance backprojection technique, J. of Bangladesh Medical Physics Association, ISSN 1727-6179, Vol.3, p.7-13, Jan 2004
18. Akter Nasreen and **Rabbani K S**, Interfacing arrangement and software development for acquisition and analysis of respiratory data, BRAC University J., Dhaka, vol.1, p.99-107, 2004.
19. Sikder M K U and **Rabbani K S**, Simulation of evoked muscle potentials using a simplified model, Dhaka University J. of Science, Vol. 54, p. 105-108, 2006
20. Sikder M K U and **Rabbani K S**, ΔV–t analysis of evoked muscle potentials for diagnosis of neural disorders, Dhaka University J. of Science, Vol.55(1):111-114, 2007
21. Zaid Bin Mahbub and **K S Rabbani**, Analysis of Evoked Neuromuscular Action Potentials for Objective Test of Neurological Disorders, Journal of Biological Physics (Springer), vol 33, p. 99-108, 2007.
22. **K. S. Rabbani**, M J Alam and M A Salam, Frequency Distribution of F-Latencies (DFL) has physiological significance and gives Distribution of Conduction Velocity (DCV) of motor nerve fibres with implications for diagnosis, Journal of Biological Physics (Springer), vol 33, p. 291-303, 2007. https://doi.org/10.1007/s10867-008-9071-6
23. **K S Rabbani** and M A S Karal, A new four-electrode Focused Impedance Measurement (FIM) system for physiological study, Annals of Biomedical Engg (Springer, US), vol 36, no.6, p.1072-1077, 2008
24. K S Rabbani and M A S Karal, Variation in sensitivity within the focused zone of the new four-electrode Focused Impedance Measurement (FIM) system, Dhaka University J. of Science, vol 56(2), p. 221-224, 2008
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39 **Rabbani K S**, Elimination of diarrhoeal pathogens from drinking water using low cost solar devices, Proceedings of the International Conference on Physics and Energy for Development, Dhaka, p.317(1985).

40 **Rabbani K S**, Rahman M M and Khan T I, Solar water heater for domestic use, Report, Renewable Energy Research Centre, University of Dhaka, p.23(1986).

41 **Rabbani K S**, Provision of drinking water in third world villages - Alternative techniques using renewable energy sources., Proceedings, Second World Renewable Energy Congress, Reading, UK, p.774-778, (13 - 18 September, 1992)

42 **Rabbani K S**, Low cost solar thermal devices to provide arsenic and germ free drinking water for rural areas, Proceedings of the International Conference on Renewable Energy for Rural Development, BUET, Dhaka, p. 285-291 (19-21 January, 2002)

SCIENCE POLICY RELATED AND POPULAR PUBLICATIONS

1. **Rabbani K S**, Microcomputers in Physics instruction and research in Bangladesh, Proceedings of the regional conference on Microcomputers in Physics instruction and research, University of Philippines, August (1986).
2. **Rabbani K S**, University, Research organisation and Industry Interaction (Electronics sector), Proceedings, Bangladesh Assoc. for the Adv. of Science (BAAS) and American AAS Symposium, Dhaka, p.258 (1989).
3. **Rabbani K S**, Prospect and potentials of Electronic Industry in Bangladesh, Souvenir published by Bangladesh Small and Cottage Industries Corporation on the auspices of Industrial Exhibition '92 on Electronic & Electrical products, February, 1992.
4. **Rabbani K S**, Electronic Industrialisation: the potentials of Electromedical equipment, Souvenir published on the Annual Conference of the Bangladesh Electronics Society, p.33-34, 16 April, 1992
5. **Rabbani K S,** Possibilities of R&D in Medical Physics and Bio-medical Engineering in the Third World in the light of Bangladesh experience, News from ICTP, No.70/71, p.7-10, (May-June 1993)
6. **Rabbani K S**, Local development of Biomedical Technology - a must for the Third World, Proceedings, Regional Conference of IEEE-EMBS and 14th BMES- India, Delhi,p.1.31-1.32, 1995
7. **Rabbani K S**, How to deliver the benefits of modern Biomedical Engineering to the common people in the economically developing countries, Invited Lecture, 9th Medical Engineering Conference, Yamagata, Japan, October 26-27, 1995.
8. **K Siddique-e Rabbani,** Economic Policy Paper on Light Engineering & Electronics Enterprise in Bangladesh. Publishers: The Dhaka Chamber of Commerce and Industry (DCCI), Bangladesh & The Center for International Private Enterprise (CIPE), Washington, USA, 2005. https://www.dhakachamber.com/pdf_viewer/storage/economic-policies/June2019/IsJ9j0cjbxnDr7Y1PUJo.pdf

POPULAR SCIENCE ARTICLES (most in Bangla)

9. Scientist and Society, Dhaka University Physics Association Annual, 1979.
10. How Solar Eclipse was observed on a screen, Weekly Bichitra, 29 February (1980).
11. Homemade slide copier, Bangladesh Photographic Society Bulletin, July (1984).
12. Charging of Nickel Cadmium Batteries, Electronics (published from Dhaka), p.26- 27, February (1988).
13. Charging of Lead acid Batteries, Electronics, p.26-27, Feb-March (1990).
14. Electronics in saving life - CAT & Ultrasound imaging, Electronics, p.18-24, Nov-Dec (1990).
15. Rain water against Diarrhoea, Daily Sangbad, 27 May (1991).
16. Drinking water in Third World Villages, Alternative techniques using Renewable Energy Sources. The daily Star, July 15, 1998
17. Physics in Neuromedicine, Bangladesh perspective, Daily Naya Diganto, Eid Special, 2007, (p.537-539)
18. Electronics Pathsala (Electronics School, in Bangla), a serial article published in Biggan Chinta, a monthly magazine on popular science by Prothom Alo, the leading Bangla daily in Bangladesh, since November 2016.

PATENTS

1. **Rabbani K S** and Huda A K M S, Single and Three Phase Automatic Voltage Guard and Power Conditioning systems offering protection from abnormalities in the line voltage, Patent granted, Bangladesh Patent Office, No.91/94, October, 1994.

(After the above I decided not to take out patents on my innovations, based on a personal philosophy that global disparity owes a lot to patenting, although there were several innovations that could have been patented)

Annexure-2

INVITED LECTURES (152 at home and abroad as on 3 May, 2022)

A-1. On Special Invitation, a*t home:*

1. " Solar Thermal technology", Popular lecture at Science Museum, Dhaka, June 8, 1999
2. "Role of Physics in the modern world", Gono Biswabiddalay (University), Bangladesh, 2000.
3. "Measurement of Cardiovascular, respiratory and nervous system parameters and application of computers in medical electronics", Islamic University of Technology (IUT), an organisation of OIC, Bangladesh, November, 2001.
4. "Indigenous Technology for protection of computers and other appliances from power line abnormalities", Special lecture organised by Atomic Energy Commission, Dhaka, October 5, 2002
5. "Scientific and Technological R&D for development of the masses – my own efforts", Lecture organised by the Rotary Club of Ramna, Dhaka, September 23, 2003
6. "Scientific and Technological R&D for development of the masses – my own efforts", Guest Speaker, Humboldt Foundation Club, Bangladesh, 2004.
7. "Light Engineering & Electronics Enterprise in Bangladesh", Presentation of an Economic Policy paper in a Seminar at Dhaka, Bangladesh [sponsored by Dhaka Chamber of Commerce and Industries (DCCI) in association with the Centre for International Private Enterprise (CIPE), Washington, USA., 2006].
8. "Drinking water disinfection for Rural Areas and for Emergencies using Solar Energy" Special lecture at IUT, Bangladesh, 14 August, 2007
9. Bio Medical Engineering Instrumentation, BRAC University, May, 2011
10. Research & Development at the department of Biomedical Physics & Technology, Dhaka University: at Anna University, Chennai, India, December, 2011
11. Potentials and prospects of innovative Electro-medical Technology development in Bangladesh, Military Institute of Science & Technology (MIST) Seminar, 5 May, 2012
12. Electronics in Healthcare: Efforts at Dhaka University, American International University, Bangladesh (AIUB), 21 November 2012.
13. Dissemination of Indigenously developed Electro-medical Devices, University of Liberal Arts, 12 March 2014.
14. Indigenously developed Medical Devices, at Square Hospitals, Dhaka, 14 July, 2014.
15. Export Potential of Bangladesh in Electronics, at Export Promotion Bureau, Bangladesh, 14 December, 2015
16. Indigenous efforts in the use of ICT in Healthcare Technology - local solutions with global potential, Organised by the department of ICT, Bangladesh University of Professionals, Dhaka, 31 March, 2016
17. Scientific Research & Life: Where we stand & what's to the future – a perspective from Biomedical Physics, Organised by Dhaka University Science Society, 5 June 2016
18. Export Potential of Bangladesh in Electronics, Export Promotion Bureau, Bangladesh, 19 March, 2017.
19. Science for Life, organized by Quantum Foundation, Bangladesh, 7 August, 2017.
20. '*সুনির্দিষ্ট লক্ষ্যে জীবন ঘনিষ্ঠ বিজ্ঞান গবেষণার অভিজ্ঞতা* (English translation from Bangla: Research Experience with a clearly defined target in 'Science for Life'), 'Halima Baegum and Shekh Sharfuddin Trust Fund Lecture', organized by the Asiatic Society of Bangladesh, 31 July, 2018.
21. 'Science & engineering research for people - glimpse of a life long journey', Khulna University of Science & Technology (KUET), 25 April, 2019.

22. PEMF for pain relief and DFL for detecting Cervical and Lumbo-Sacral Spondylotic Neuropathy, Dhaka Specialized Pain Management & Research Centre Ltd, 9 February, 2019.

A-2. On Special Invitation, i*n foreign countries:*

23. "Biomedical Physics Research in Bangladesh" Lecture as a Visiting Professor at IIT, Kanpur India, 1997
24. Distribution of F-latency (DFL) and Focused Impedance Measurement (FIM) –our two innovations with potential in Medical Physics, at National Institute of Health, Virginia, USA, 10 June,2008
25. i) Focused Impedance Measurement (FIM) –a simple human body probe & ii) 3d localisation of an object using EIT at two levels, at Biomedical Engineering Department, Kyung Hee University, Korea, December 2008
26. "Distribution of F-latency (DFL) – an innovation of Bangladesh with potential in neuro-diagnosis", at Biomedical Engineering Department, Kyung Hee University, Korea, December 2008.
27. Distribution of F-latency (DFL) and Focused impedance measurement (FIM) –two innovations of Bangladesh with potential in medical diagnosis, at Queen Mary College, London, UK, 8 June, 2009
28. Focused Impedance Method (FIM) for probing the human body, and Distribution of F-latency (DFL) for nerve conduction investigation – two innovations of Bangladesh in Medical Physics, at Nottingham University, UK, 9 June, 2009.
29. Global delivery of healthcare technology and poverty alleviation – scientists have to take a proactive role, at Nottingham University, UK, 10 June, 2009.
30. Focused Impedance Method (FIM) for probing the human body and Distribution of F-latency (DFL) for nerve conduction investigation – two innovations of Bangladesh in Medical Physics, at University of Sheffield, UK, 15 June, 2009.
31. Focused Impedance Method (FIM), an electrical technique with potential in physiological study and diagnosis, Riverside Research Institute, New York, 10 May, 2012
32. Our Innovations in the Application of Physics in Physiological studies and Medicine. Biophysics Dept, Cairo Univ. Egypt, 28 Dec 2016
33. Biomedical Engineering for the common people - *in the light of Bangladesh experience. S&BME Dept, Cairo Unv,, Egypt, 25 Dec 2016*

B-1. At Seminars, Symposia and conferences, a*t home:*

34. UNESCO sponsored workshops on Locally produced low cost equipment for Chemistry education, University of Dhaka, 1984.
35. Regional workshop on Indigenous development of Low cost equipment for Physics education, Dhaka, 2-15 November 1986.
36. "Effective management of science and the development of science and the transfer of technology", Symposium organised by the Bangladesh Association for the Advancement of Science (BAAS) and the American AAS, Dhaka, 21-24 March, 1989.
37. UNESCO sponsored workshops on Locally produced low cost equipment for Chemistry education, University of Dhaka, 1989.
38. "Prospect and potentials of Electronic Industry in Bangladesh", Seminar in connection with the Industrial Exhibition on Electronic and Electrical Products, 1992 and organised by the Bangladesh Small and Cottage Industries Corporation, Dhaka, 6 February, 1992.
39. "Use of locally developed electrophysiology equipment in neurological investigation", Dhaka Congress of Bangladesh College of Physicians and surgeons, December, 1994.

40. "Problems and Prospects of the development of electronics in Bangladesh", Keynote speech at the Bangladesh Electronics Society Annual meeting, 1997.
41. "Exploitation of commercially potential innovations", NAM Science Conference, Dhaka, 1999.
42. "Prospects and problems of electronic industry in Bangladesh", Seminar on Tech-transfer, BUET, Dhaka, December, 2000.
43. "Prospects and problems of electronic industry in Bangladesh", Keynote speech at the National Electronics and IT Seminar 2003, organised jointly by the Bangladesh Electronics Society and the Ministry of Science and ICT.
44. "Prospects of Hardware-Software mix in Bangladesh", Bangladesh Computer Samity (BCS) Seminar, September, 2004.
45. "Access to Finance for SME's in Bangladesh", Federation of Bangladesh Chamber of Commerce and Industries (FBCCI) Seminar during SME Fair, April 6, 2005.
46. "Technology and Capacity building of Women SME's", First National SME Women Entrepreneurs Conference 2006, Dhaka, Bangladesh.
47. "Development of Syllabus based Scientific Instruments using indigenous materials, and Innovative methods for Science experiments in schools and colleges (Physics)", Workshop on Problems and Prospects of Science Experiments at the Secondary and Higher Secondary Levels in Bangladesh organised by Bangladesh Academy of Sciences, August, 2006.
48. "Bio-Electrical Measurements for Physiological Study and Diagnosis", Short Course on Medical Electronics: Extent and Role in Healthcare in the 21st Century, 26 to 30 November 2006 at Islamic University of technology (IUT), an organisation of OIC, Bangladesh.
49. "Physics and Technology in Designing Medical Electronic Devices", Short Course on Medical Electronics: Extent and Role in Healthcare in the 21st Century, 26 to 30 November 2006 at IUT, Bangladesh.
50. "Healthcare equipment maintenance scenario in Bangladesh and suggestions for improvement", ORBIS Symposium, Dhaka, 2007
51. "Computer interfacing and data acquisition", Short Course & Workshop on Development of indigenous technological capability in Medical Electronics, 24 to 28 November 2007 at IUT, Bangladesh
52. "Basic electronics for bioelectrical measurements", Short Course & Workshop on Development of indigenous technological capability in Medical Electronics, 24 to 28 November 2007 at IUT, Bangladesh
53. "Design of a simple computerised ecg equipment", Short Course & Workshop on Development of indigenous technological capability in Medical Electronics, 24 to 28 November 2007 at IUT, Bangladesh
54. "Indigenous manufacture of electro-medical equipment", Short Course & Workshop on Development of indigenous technological capability in Medical Electronics, 24 to 28 November 2007 at IUT, Bangladesh
55. "Computer programming and interfacing for early learners", Short Course on ICT in Teaching-Learning in Technical and Vocational Education, 01 to 05 December, 2007 at IUT, Bangladesh
56. "University-Industry Interaction- Bangladesh Perspective", Seminar organised by the British Council Bangladesh on 22 March, 2008
57. "Towards an effective University-Industry link in Bangladesh: scope for a UK-Bangladesh Interaction", Seminar organised by the British Council Bangladesh on 29 March, 2008

58. Distribution of F-latency (DFL) and Focused Impedance measurement (FIM) – two innovations of Bangladesh with potential applications in Diabetes. Plenary Speaker, 14th Diabetes and Endocrine Conference, BIRDEM, Dhaka, November 2008
59. Use of solar radiation to destroy pathogens in arsenic free surface water at low cost for Third world villages, at the Bangladesh Chemical Congress 08 (held in February 2009), Dhaka University
60. Focused impedance measurement (FIM) and pigeon hole imaging – a family of simple human body probes, Eighth conference on Biomathematics, Biophysics and Biostatistics, Research Centre for Mathematical and Physical Sciences (RCMPS), Chittagong University, March, 2009
61. Distribution of F-Latencies (DFL), a novel neurophysiological parameter and its potential application in medicine, ibid.
62. A case for the use of human power over solar PV for supplying electricity to rural homes, Renewable Energy Conference, Dhaka, March, 2009
63. Evoked responses for neurophysiological study and diagnosis, Bangladesh Physical Society Conference, May, 2009
64. Focused Impedance Method (FIM) for probing the human body, and Distribution of F-latency (DFL) for nerve conduction investigation – two innovations of Bangladesh in Medical Physics, International conference on Recent Advances in Physics (Rap-2010), March 27-29, 2010, University of Dhaka, Bangladesh.
65. Focused Impedance Method (FIM) – a local innovation with global potential in medicine and other areas, Conference of the Bangladesh Physical Society, Dhaka, February, 2011.
66. Biomedical Instrumentation, at BRAC University, Dhaka, 23 May, 2011.
67. Distribution of F-Latency (DFL) – innovation of a new parameter for diagnosis of peripheral neuropathy, International Science Seminar by the Asiatic Society of Bangladesh, October 2011.
68. Annual Seminar of Bangladesh Medical Physics Association, 2011.
69. Health Technology for the Future, Leadership Colloquium, ICT in Healthcare, organized by the Daily Star newspaper, Dhaka, January, 2012.
70. Innovating Health Technology for the Deprived 80%, TEDxDhaka, 17 February, 2012
71. Use of Distribution of F-Latency (DFL) as a screening tool for peripheral neuropathy, Bangladesh Physical Society Conference, 15 March, 2012.
72. Efforts at Dhaka University for application of Electronics in Healthcare, Bangladesh Electronics Society Conference, 4 October, 2012
73. Innovations in nerve conduction measurements at University of Dhaka – a review, Conference of the Bangladesh Society for Electro Neurophysiologists, 24 November, 2012
74. Preconditions and Constraints for the Growth of University-Industry Link (UIL) to Foster PPP for Development, Workshop of the UGC-ADB project, 10 November,2012
75. Bangladesh Country Report on ELECTRONICS, Third D-8 Ministerial Meeting on Industry & Seventh Session of D-8 Working Group on Industrial Cooperation, Dhaka, Bangladesh, 8-9-10 October 2012.
76. Safe drinking water using free sunshine, DU Bose Centre Seminar, July 11, 2012
77. Recent developments in Focused Impedance Method (FIM), National Conference on Physics for Technology Development, organized by Bangladesh Physical Society, 28 December, 2012.
78. Potential of export of household Electronic items from Bangladesh, Export Promotion Bureau, Government of Bangladesh, 23 June 2013.
79. Electrical industry in Bangladesh – potentials, problems and solutions, Seminar of the Bangladesh Electrical Merchandise Manufacturers' Association (BEMMA), 24 June, 2012

80. Electronics in Healthcare:Efforts at Dhaka University, Lecture at a meeting of the BUET (Bangladesh University of Engineering & Technology) EEE batch of 07, 22 Jan 2013
81. Biomedical Engineering: Efforts at the Department of Biomedical Physics & Technology of Dhaka University, IUT-IT-Fest, 5 October 2013.
82. Dissemination Efforts of Research Outcomes of the Department of Biomedical Physics & Technology of Dhaka University and its Associates, Annual conference of the Bangladesh Physical Society, 6-8 February, 2014.
83. University-Industry Collaborative Research, Workshop organised by the Bangladesh University Grants Commission, 20 February, 2014.
84. Dissemination Efforts of Research Outcomes of the Department of Biomedical Physics & Technology of Dhaka University and its Associates, International Conference on Physics for Energy and Environment, Bangladesh Physical Society 06-08 March, 2014
85. **Indigenous Development of Electro-Medical Devices at Dhaka University,** International Conference on Electrical Engineering and Information Technology (ICEEICT 2014), jointly organized by Military Institute of Science and Technology (MIST) and Institute of Information Technology (IIT) of Jahangirnagar University, 10 - 12 April 2014.
86. Innovation Ecosystem for National Development: University-Industry Collaboration, Workshop by Govt of Bangladesh, HEQEP-UGC, 13 May 2014 (Panel Discussant)
87. Patenting of medical devices and ethics, Bangladesh Bioethics Society, 4 June, 2014.
88. Access to and Use of Scientific and Technical Information for Development in Bangladesh: Current scenario, Challenges and Opportunities, Panel discussant at Training programme of the World Intellectual Property Organisation (WIPO), held in Dhaka, 18-19 June 2014.
89. Importance of Electronics in indigenous R&D and manufacture of medical devices, Annual Conference of the Bangladesh Electronics Society (BES), Dhaka, 26 June 2014.
90. Electrophysiology of peripheral nerves and measurements, Bangladesh Society of Physiology Workshop, 5 December, 2014
91. New methods in peripheral Nerve conduction measurement from Dhaka University, International Conference on Physics in Medicine and Clinical Neuroelectrophysiology, PMCN-2015), Dhaka, Bangladesh, 19-20 February 2015.
92. Biomedical Engineering Research at Dhaka University, Military Institute of Science and Engineering (MIST), Dhaka, Bangladesh, 25 February, 2015.
93. R&D outcome from the Department of Biomedical Physics & Technology, Dhaka University, Rotary Club at Gulshan, Dhaka, Bangladesh, 18 April, 2015.
94. **Indigenous Development of Electro-Medical Devices at Dhaka University,** 2nd International Conference on Electrical Engineering and Information Communication Technology (ICEEICT-2015), Dhaka, Bangladesh, 21-23May, 2015.
95. Telemedicine for Rural Areas (PC and Smartphone based), at the 4th conference of Bangladesh Network Operators' Group (bdNOG4), November 10, 2015.
96. Telemedicine for Rural Areas (PC and Smartphone based), at TEIN Application Workshop on Telemedicine held on 20-21 October 2015 at BSMMU, Dhaka
97. Telemedicine: Future for Breast Cancer Services for Remote areas through the use of new electrical impedance techniques, Conference organized by Tasmia Breast Care Centre to celebrate the Breast cancer month, Dhaka, 29 October, 2015.
98. Success of Indigenous R&D efforts in Biomedical Engineering, EICT-2015 organised by Khulna University of Engineering & Technology (KUET), 10 December, 2015
99. R&D in Biomedical Engineering at Dhaka University, 2nd International Conference on Electrical Engineering and Information Communication Technology (*ICEEICT 2015*), Dhaka, 22 May, 2015.

100. BioMedical Instrumentation, at a Training Programme on Biomedical Instrument Engineering organized by the Institute of Diploma Engineers, Bangladesh, 01 November, 2015
101. Development and field trial of an indigenous telemedicine system targeting the rural poor, Keynote Lecture, rHealth 2016, Bangladesh University of Engineering & Technology, (BUET), 9 January, 2016
102. Potential of indigenously developed Telemedicine using Internet - Local Solutions with Global Potential, *Keynote lecture,* bdNOG5 & ION Conference, Dhaka, April 07-11, 2016
103. Relevance to life in science & technology research, Satyen Bose Science Club, Bangladesh University of Engineering & Technology (BUET), Dhaka, May 3, 2016.
104. For effective dissemination of research outcome in science and technology, an innovator has to become an entrepreneur, Women Scientists Mentor-Mentees Program, Bangladesh Academy of Sciences, 29 October, 2016
105. Indigenous development of Healthcare Technology related to Physics in Medicine, Keynote Lecture, International Day of Medical Physics, organised by Bangladesh Medical Physics Association, 7 November, 2016
106. Targeting The Deprived Humanity In Biomedical Engineering Research: Our Efforts, Military Institute of Science & Technology, MIST-BICOB, Dhaka, 23-24 Dec, 2016.
107. Importance of Relevant and Target Oriented Research in Science & Technology. Keynote lecture at Seminar organised by Dhaka University Science Society (DUSS), 3 February, 2017.
108. Education, Certification and Accreditation in Medical Physics, *International Conference on Physics in Medicine and Clinical Neuro Electrophysiology (PMCN-2017),* 10-11 March 2017, Dhaka, Bangladesh
109. Telemedicine: Technology development and deployment experience - Rural Healthcare using Indigenously Developed Technology, National Conference *on* "Electronics and ICT", organized by Bangladesh Electronics Society (BES), 20 April 2017.
110. How to improve teaching of Physics – based on own experience (in Bangla), Workshop on 'Teaching Methodology, Assessment Methods and Pedagogy' organised by the Department of Physics, University of Dhaka, Dhaka, 5 November, 2017
111. Telemedicine: Technology development and deployment experience. Keynote Speech, International Day of Medical Physics, organised by Bangladesh Medical Physics Association, 18 Nov, 2017.
112. Should we go for AI in Telemedicine for rural areas? International Workshop on Artificial Intelligence and Applications (IWAIA), Organized by Fab Lab DU, Department of Electrical and Electronic Engineering, University of Dhaka, December 18, 2017
113. Biomedical Engineering research targeting people in low resource countries, Keynote Lecture, GC-BioMedIT-2018, organized by Jessore University at Dhaka, 9 Feb, 2018.
114. Applying Physics to Life, International Conference on Physics - 2018, Dhaka, organized by Bangladesh Physical Society, 08-10 March, 2018
115. Addressing the young technological enthusiasts of Robolution-2018, - Sharing my thoughts, Robolution-2018, Military Institute of Science & Technology (MIST), Dhaka, 24 March, 2018
116. 'বিজ্ঞান ও প্রযুক্তি গবেষণা কেন ও কীভাবে করব?' (English translation from Bangla: Why and how should we do Science and Technology research?), Seminar organized by Dhaka University Science Society (DUSS), Dhaka, 5 May, 2018.
117. Research for life - focusing on people's needs, Aluminium Jubilee of the Department of Electrical & Electronic Engineering, Premier University, Chittagong, 11 May, 2018
118. Dhaka University Telemedicine Programme – Innovations in Technology and Service Delivery, Bangladesh Electronic Society Conference, 25-26 November, 2018.
119. The importance of indigenous development of computer based technology in healthcare - seen through a chronicle of our own efforts, Keynote speech, International Joint Conference on Computational Intelligence (IJCCI 2018), organized jointly by Daffodil International University, Jahangirnagar

University and South Asian University, India, and held at Daffodil International University, Dhaka, December 14-15, 2018.

120. Importance of Philosophy in Science & Technology Research: for an equitable world, Keynote Lecture, Al-Biruni Commemoration, Dhaka University, January 20, 2020
121. Elementary Physics and Chemistry for clinical Neurophysiology, Educational Tutorial, Bangladesh Clinical Neuro Electro Physiologists' Society (BCNEPS), 10 October 2020
122. Focused Impedance Method (FIM), an innovation of Dhaka University with potential applications in Biomedical Physics and beyond, International e-Conference on Physics 2021, 5-7 February, 2021, organized by Bangladesh Physical Society (BPS), University of Dhaka, Frontiers of Physics of US+Bangladesh Collaboration (online)
123. Science & Technology Divide, Why are we lagging behind? International e-Conference on 'Celebrating 100 years of the University of Dhaka: Reflections from Alumni—International as well as National', Webinar 2 – Sciences for Society, 25-28 February 2021 (online)
124. Filling a void in the century old cable theory of neural conduction, National Conference of Bangladesh Physical Society, 6 August, 2021 (online).
125. Basic Physics in electrophysiology, how to measure EEG, EMG, NCV. Educational Tutorial, Bangladesh Clinical Neuro Electro Physiologists' Society (BCNEPS), 22 November 2021 (online)
126. Rethinking some issues pertaining to Medical Physics, 21st Asia-Oceania Congress of Medical Physics (AOCMP-2021) United International University 10-12 December 2021 (online)
127. How to take Telemedicine of the future to our Rural Population? - Experience achieved through Dhaka University Telemedicine Programme (DUTP), Next Generation Webinar organized by 'Aspire to Innovation (a2i)', ICT Division, Government of Bangladesh, 25 April, 2022 (online)
128. Biomedical devices developed indigenously having a potential for flexible electronics, Islamic University of Technology (IUT), Bangladesh Short Course on Flexible Electronics, 19 July, 2023
129. Basic Physics of Electrophysiology, Origin, explanation and Measurement of electrophysiological signals-I, Educational Tutorial, at Dr. MR Khan Shishu Hospital and ICH, Mirpur, organized by Bangladesh Clinical Neuroelectrophysiologists Society (BCNEPS), 01 December, 2023
130. Lifestyle improvement and healthcare through an Advanced Telemedicine System in rural areas of LMICs - a holistic technology oriented approach, based on the field experience of 'Dhaka University Telemedicine Programme'. the 2nd international symposium on One Health One World, OHOW 2023, Bangladesh, organized by University of Tokyo and University of Dhaka, 07 December, 2023.
131. Focused Impedance Method (FIM) – an innovation from Bangladesh reaching out to the Globe, Plenary talk, Sultan Ahmed Memorial Conference, Department of Physics, University of Dhaka, 3-4 May, 2024
132. Pulsed Electro Magnetic Field (PEMF) - the medicine of the future, Bangladesh Physical Society Conference, Dhaka, May 10, 2024
133. A journey through Biomedical Physics research and development in Bangladesh (since 1978) targeted to the welfare of the common people, Workshop on Biophysics: Exploring Biophysics: From Physical Principle to Technological Advancement, Organized by: Department of Physics, BUET, 28 June 2024.

B-2. At Seminars, Symposia and conferences, in Foreign Countries

134. Regional Conference on Microcomputers in Physics Instruction and Research, University of Philippines, 20-22 August 1986.
135. How to deliver the benefits of Biomedical Engineering to the common people in the Economically Developing Countries - 9th Autumn Medical Engineering Conference, Yamagata, Japan, October 26-27, 1995.
136. Research & Development on Electrical Bio-impedance in Bangladesh", "X International Conference on Electrical Bio- impedance, Barcelona, Spain, April 5-9, 1998.

137. Focused Impedance Measurement (FIM) - A new technique with improved zone localisation, X International Conference on Electrical Bio-impedance, Barcelona, Spain, April 5- 9, 1998.

138. Commercialisation of locally developed electronic products in Bangladesh, Seminar on Indo-Bangladesh Technological co-operation, Kolkata, India, September, 2000.

139. Indigenous Instruments and systems for a computerised flood water monitoring network using mobile and fixed telephones, Symposium on IT-based forecasting, warning and participatory management systems, Kolkata, India, November, 2001.

140. Innovation for Medical Physics research in the Third World - in the light of R&D in Bangladesh, First UAE International Conference on Biological and Medical Physics March 27-30, 2005

141. Neuro-physiological Study and diagnosis using evoked responses - tutorial lecture at the 16th International Conference on Medical Physics, Dubai, 14-16 April, 2008.

142. Medical Physics & Biomedical Engineering fort the Third World, 16th International Conference on Medical Physics, Dubai, 14-16 April, 2008.

143. Distribution of F-latency (DFL) and Focused Impedance Measurement (FIM) –our two innovations with potential in Medical Physics, at National Institute of Health (NIH), Virginia, USA, June10,2008.

144. Distribution of F-latency (DFL) and Focused impedance measurement (FIM) –two innovations of Bangladesh with potential in medical diagnosis, **8 th Asia Oceania Congress on Medical Physics (AOCMP) & 6 th South East Asia Congress on Medical Physics (SEACOMP), Ho ChiMinh City, Vietnam, October 28-29, 2008**

145. Potentials of electrical techniques in imaging and therapy for Palliative care of cancer patients, workshop following **8 th Asia Oceania Congress on Medical Physics (AOCMP) & 6 th South East Asia Congress on Medical Physics (SEACOMP), Ho ChiMinh City, Vietnam, Nov 1, 2008**

146. Development of Healthcare Devices in Bangladesh, WHO meeting meeting on barriers and opportunities for improved access to medical devices by technology transfer and local production, Geneva, 5 June 2012

147. Sustained healthcare in the Third World: not possible without indigenous R&D and manufacture of healthcare equipment, Keynote Address at 7th Appropriate Healthcare Technology Conference, London, UK, organized by the Institution of Engineering and Technology, UK, 18-19 Sept, 2012

148. An indigenously developed telemedicine system with special focus on Cardiology, CardioCon 2014, 25-27 December, 2014, organized by the Pakistan Cardiac Society, Karachi, Pakistan.

149. Innovations in the use of mobile devices in healthcare Implementation, Barriers and Policy Issues in Resource-limited Regions (RLR), Health Technology Task Group (HTTG) workshop, at IUPESM World Congress (WC2015), Toronto, Canada, June 11, 2015.

150. Working demonstration of Telemedicine software and indigenously made Tele-ECG, Health Technology Task Group (HTTG) workshop, at IUPESM World Congress (WC2015), Toronto, Canada, June 11, 2015.

151. Relevance of Tribology in Biomedical Physics & Technology Research, Keynote Speech, Tribology Frontiers Workshop (TFW 2016), organized by IIEST- Shibpur, Howrah, India, 3-4 August, 2016

152. Indigenous development of healthcare devices and systems - in the light of Bangladesh experience, Plenary Lecture, 1st African Conference on Medical Physics, Biomedical Engineering and Sciences (AFROBIOMEDIC 2016), Abuja, Nigeria, October 17- 21, 2016 (through recorded presentation).

153. Applying Physics to Life –Development of healthcare technology for the common people, - in the light of Bangladesh experience Keynote Lecture, MTPR-16 (Organised by the Dept of Physics, Cairo University), Hurghada, Egypt, 17-20 Dec 2016

154. Applying Physics to Life –Development of healthcare technology for the common people, - in the light of Bangladesh experience Keynote Lecture, International Conference on Physics of Space and Materials ICPSM-2017, organised by St. Xavier's College, Kathmandu, Nepal, 2-3 Sept, 2017.

155. Experience of indigenous technology based Telemedicine in rural Bangladesh - years of successful implementation, Special session on 'Technological Challenges in Rural Health Centers' organised by Health Technology Task Group (HTTG) at World Congress of Medical Physics and Biomedical Engineering- WC2018, Prague, 3-8 June, 2018.
156. Gender equality in STEM in Bangladesh, how much we could do and how we can go further, 60th Anniversary Workshop on Gender, diversities and unconscious bias: how to master the playground rules in Academia, International Science Programme (ISP), Uppsala University, Sweden, September 9-10, 2021 (online)
157. Electrical measurements for characterisation of biological cells in health and disorder, International Conference on Material Science and Characterization Technology (ICMSCT2021), 26 -28 September, 2021. St. Xavier's College, Kathmandu, Nepal (online)
158. Biomedical Engineering in Bangladesh, 5th Forum for Asian Clinical Engineering, Japan, 6 November, 2021 (online)
159. SCIENCE & RELIGION– from the perspective of a Physicist, Hamim Khan Lecture -2022, Asiatic Society of Bangladesh, 13 January, 2023
160. Why indigenous technology based electronics industry could not flourish yet, an in-depth analysis from four decades of active engagement, Keynote at Plenary Session, International Conference on Electronics and Informatics 2022 organized by Bangladesh Electronics and Informatics Society (BEIS), 26 January, 2023
161. Basic Physics in electrophysiology EEG WAVE (1), Educational Tutorial, organized by Bangladesh Clinical Neuroelectrophysiologists Society (BCNEPS), 06 February, 2023
162. Basic Physics in electrophysiology- EMG, NCV, Educational Tutorial, organized by Bangladesh Clinical Neuroelectrophysiologists Society (BCNEPS), 09 February, 2023
163. University-Industry collaboration for innovative Healthcare equipment in low resource countries - a successful model from Bangladesh, 14th Meditex Bangladesh 2023 International Expo, 26 May, 2023
164. Biomedical devices developed indigenously having a potential for flexible electronics, Islamic University of Technology (IUT), Bangladesh Short Course on Flexible Electronics, 19 July, 2023
165. Design and Manufacture of healthcare devices in LMICs – necessity, challenges and way out, Plenary talka at 5th International Clinical Engineering and Health Technology Management Congress (ICEHTMC), Visakhapatnam, India (online), November 10-13, 2023
166. Indigenous development, manufacture and sale of medical devices are prerequisites for clinical engineering to be useful in the low and medium income countries (LMIC), 6th Forum for Asian Clinical Engineering (online), Nov 5, 2023.
167. Basic Physics of Electrophysiology, Origin, explanation and Measurement of electrophysiological signals-I, Educational Tutorial, at Dr. MR Khan Shishu Hospital and ICH, Mirpur, organized by Bangladesh Clinical Neuroelectrophysiologists Society (BCNEPS), 01 December, 2023
168. Lifestyle improvement and healthcare through an Advanced Telemedicine System in rural areas of LMICs - a holistic technology oriented approach, based on the field experience of 'Dhaka University Telemedicine Programme'. the 2nd international symposium on One Health One World, OHOW 2023, Bangladesh, organized by University of Tokyo and University of Dhaka, 07 December, 2023.
169. Focused Impedance Method (FIM) – an innovation from Bangladesh reaching out to the Globe, Plenary talk, Sultan Ahmed Memorial Conference, Department of Physics, University of Dhaka, 3-4 May, 2024
170. Pulsed Electro Magnetic Field (PEMF) - the medicine of the future, Bangladesh Physical Society Conference, Dhaka, May 10, 2024
171. A journey through Biomedical Physics research and development in Bangladesh (since 1978) targeted to the welfare of the common people, Workshop on Biophysics: Exploring Biophysics: From Physical Principle to Technological Advancement, Organized by: Department of Physics, BUET, 28 June 2024
172. Design and Manufacture of healthcare devices in LMICs – necessity, challenges and way out, Plenary talka at 5th International Clinical Engineering and Health Technology Management Congress (ICEHTMC), Visakhapatnam, India (online), November 10-13, 2023

173. Indigenous development, manufacture and sale of medical devices are prerequisites for clinical engineering to be useful in the low and medium income countries (LMIC), 6th Forum for Asian Clinical Engineering (online), Nov 5, 2023.