M. SAIFUL HUQ, B.Sc. (Hons), M.Sc. MS, PhD, DABR, FAAPM, FInstP

Curriculum Vitae

PERSONAL INFORMATION

M. Saiful Huq, B.Sc. (Hons), M.Sc. MS, PhD, DABR, FAAPM, FInstP

Professor of Radiation Oncology

Professor of Clinical and Translational Science

Director of the Division of Medical Physics

Department of Radiation Oncology

University of Pittsburgh School of Medicine and UPMC Hillman Cancer Center

UPMC Cancer Pavilion, Fifth Floor, Suite 542

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huqs@upmc.edu

Foreign language fluency: Bengali

PROFESSIONAL SUMMARY

Primary Area of Specialization

Medical Physics

Areas of expertise and interest

Radiation Oncology Physics, Radiation Metrology, Radiation Dosimetry, Quality assurance, Quality Control, Quality Management, Stereotactic Radiosurgery and Stereotactic Body Radiotherapy

EDUCATION

Postgraduate

Yale University School of Medicine New Haven, CT	Postdoctoral Medical Physics	1988-1990
Oak Ridge Associated Universities, ORNL Oak Ridge, TN	Postdoctoral Physics	1986-1988
College of William and Mary Williamsburg, VA	Postdoctoral Physics	1984-1986

Graduate

College of William and Mary Williamsburg, VA	Physics	PhD	1979-1984
College of Williams and Mary Williamsburg, VA	Physics	MS	1977-1979
University of Dacca Dacca, Bangladesh	Physics	MSc	1974-1976

Undergraduate

University of Dacca Dacca, Bangladesh	Physics	BSc (Hons)	1969-1974

CERTIFICATION

American Board of Radiology (Therapeutic Radiological Physics) Indefinite	1995-

ACADEMIC APPOINTMENT HISTORY

- Professor of Radiation Oncology, University of Pittsburgh School of Medicine, Pittsburgh, PA, October 2004 – Present
- Professor, University of Pittsburgh Clinical and Translational Science Institute, Pittsburgh, PA, July 2012 – Present
- Clinical Professor, Department of Radiation Oncology, Jefferson Medical College of Thomas Jefferson University, Philadelphia, PA. October 2003 – September 2004
- Associate Professor, Department of Radiation Oncology, Jefferson Medical College of Thomas Jefferson University, Philadelphia, PA, July 1997 – October 2003
- Assistant Professor, Department of Radiation Oncology, Jefferson Medical College of Thomas Jefferson University, Philadelphia, PA, July 1992 – June 1997
- Instructor, Department of Radiation Oncology and Nuclear Medicine, Jefferson Medical College of Thomas Jefferson University, Philadelphia, PA, September 1990 – June 1992
- Instructor, Summer School, College of William and Mary, Williamsburg, VA, July 1985 – August 1985

EMPLOYMENT HISTORY

- Director, Division of Medical Physics, Department of Radiation Oncology, UPMC Hillman Cancer Center, Pittsburgh, PA, October 2004 - Present
- Member, D3/CTSI Clinical Advisory Board, May 2018 - Present
- Clinical Director, Medical Physics Division, Department of Radiation Oncology, Thomas Jefferson University Hospital, Philadelphia, PA, July 1997 – September 2004
- Staff Medical Physicist, Medical Physics Division, Department of Radiation Oncology, Thomas Jefferson University Hospital, Philadelphia, PA, September 1990 – June 1997

- Director, Quality Assurance, Radiation Therapy Oncology Group (RTOG), September 1997 – May 2002
- Radiation Therapy Oncology Group (RTOG) Group Physicist, May 2002 – September 2004

PROFESSIONAL EXPERIENCE

- Director of Medical Physics with the overall responsibility of the management of Radiation Oncology Medical Physics Services at UPMC Hillman Cancer Center and its network of thirty (30) Cancer Centers in Western Pittsburgh and Harrisburg area and two Cancer Centers overseas in Rome, Italy and two in Waterford and Cork, Ireland.
- Principal Physicist involved in the design, planning and construction of physical facilities; development of equipment specification and purchase agreement; supervision of equipment installation and commissioning at cancer centers at:
    - UPMC Cancer Center network in Pittsburgh area; Whitfield facility, Dublin, Ireland; Cork facility, Cork, Ireland; Rome, Italy; Villa Maria, Italy; Kazakhstan; Bucaramanga, Columbia; National Cancer Institute and Research Hospital, Dhaka, Bangladesh; Combined Military Hospital Cancer Center, Dhaka, Bangladesh; Medisprof Cancer Center, Cluj-Napoka, Romania; and Pediatric Oncology and Radiotherapy Hospital in Romania in partnership with Maria Sklodowska Curie Emergency Paediatric Hospital. The Ireland, Rome and Columbia centers stem from the global initiative of UPMC International Commercial Services Division while the centers in Dhaka and Romania are volunteer initiatives.

AWARDS AND HONORS

- AAPM William D. Coolidge Gold Medal Award, 2023
- 2023 Global Health Catalyst Distinguished Leader Award (Global)
- Upstate New York chapter of AAPM Lifetime Achievement Award, 2021
- Fellow, American Association of Physicists in Medicine, 2000
- Fellow, Institute of Physics, 2004
- Distinguished Medical Physicist award; Indo American Society of Medical Physicists, July 19, 2010
- Distinguished Service Award; The American Board of Radiology, March 2010
- Farrington Daniels Award; Best scientific paper on Radiation Dosimetry; American Association of Physicists in Medicine, 1991
- Paper selected for Editors' Choice column for the Medical Physics Scitation and medphys.org websites for the March 2019 issue
- Martin Marietta (Oak Ridge National Laboratory, Oak Ridge, TN) team award for excellence in publications, 1989
- Travel award to attend NATO Advanced Study Institute on Atomic and Molecular Processes of Controlled Thermonuclear Fusion held at Santa Flavia, Italy, July 19-30, 1982.

MEMBERSHIP IN SCIENTIFIC OR PROFESSIONAL SOCIETIES

- American Association of Physicists in Medicine, 1990 - Present
- American Society for Radiation Oncology, current member
- American College of Radiology, until 2017

MEDICAL PHYSICS CERTIFICATION ACTIVITIES

- Member, Oral Board Examination Panel in Therapeutic Radiological Physics of American Board of Radiology (ABR), 2001 – 2014, 2018, 2021
- Oral Board Examiner, American Board of Medical Physics (ABMP), 2001
- Oral Board Examiner, International Medical Physics Certification Board (IMPCB), 2021, 2022, 2023, 2024

AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE (AAPM) ACTIVITIES

2022 AAPM Committee Membership

- Member, Governance Committee, as chair of the Nominating Committee, 2022
- Member, Global Needs Assessment Committee, 2022 - 2024
- Member, Global Liaisons Committee, 2022 - 2024
- Chair, Nomination Committee, 2022
- Member, Strategic Planning Committee of the Board, 2022
- Member, Unit no. 64 – Innovation (SG 1), 2022
- Consultant, Work Group on the implementation of TG-100, 2022

AAPM Presidential chain: 2019-2021

- President Elect- Designate: July 2018 – December 2018
- President Elect: 2019
- President: 2020
- Chairman of the Board of Directors: 2021

2021 AAPM Committee Membership

- Member, Administrative Council as Guest - Chair of the Board, 2021
- Member, Ad Hoc Committee on COVID-19 Response (AHCCR) as Guest – President, 2020 – 2021
- Member, Ad Hoc Committee for Equity, Diversity and Inclusion (AHCDI) as Consultant – President, 2020 – 2021

- Member, Ad Hoc Committee to Respond to the Impact of the Coronavirus (COVID-19) on AAPM Meetings (AHRICM), 2020 – 2021
- Chairman of the Board of Directors, 2021
- Member, Corporate Advisory Committee (CAB) as Chair of the Board, 2021
- Member, Education Council as Guest - Chair of Board, 2021.
- Chairman of the Board Executive Committee, 2021.
- Member, Finance Committee as Chair of the Board, 2021.
- Member, Global Liaison Committee as Chair of the Board, 2021 - 2023
- Member, International Council as Guest – Chairman of the Board, 2021
- Member, Nominating Committee as Chair of the Board 2021 – 2022
- Member, Professional Council as Guest – Chair of the Board, 2021
- Member, Research Committee as Guest – Chairman of the Board, 2021
- Member, Science Council as Guest – Chair of the Board, 2021
- Chair, Strategic Planning Committee of the Board, 2021
- Member, Task Group No. 155 – Small Fields and Non-Equilibrium Condition Photon Beam Dosimetry (TG155), 2007 – 2022
- Member, Task Group No. 66U1 – Quality assurance for computed-tomography simulators in Radiation Oncology: An update to the Report of the AAPM Radiation Therapy Committee Task Group No. 66 (TG66U1), 2021 –2022
- Member, Unit No. 37 – TG100 Repository, 2018 – 2021
- Member, Unit No. 38 – Review of WG100 Workshops (UN38), 2018 - 2021
- Member, Work Group on the implementation of TG-100, 2018 – 2021

2020 AAPM Committee Membership

- Member, Administrative Council as Guest - President, 2020
- Member, Awards and Honors as President, 2020
- Member, Ad Hoc Committee to establish an International Council – as President, 2020
- Member of the Board of Directors as President, 2020

- Member, Corporate Advisory Committee (CAB) as President, 2020
- Member, Corporate Relations Committee as President, 2020
- Member, Development Committee as President, 2020
- Member, Education Council as Guest - President, 2020
- Member, Ethics Committee – President, 2020
- President, Executive Committee, 2020
- Member, Finance Committee as President, 2020
- Member, Government Regulatory Affairs Committee as President, 2020
- Member, History Committee as President, 2020
- Member, International Affairs Committee as President, 2020
- Member, investment Advisory Committee as President, 2020
- Member, Journal Business Management Committee as President, 2020
- Member, Meeting Coordination Committee as President, 2020
- Member, Membership Committee as President, 2020
- Member, Professional Council as Guest – President, 2021
- Member, Regional Organization Committee as President, 2020
- Member, Science Council as Guest – President, 2020
- Member, Strategic Planning Committee of the Board as President, 2020
- Member, Therapy Physics Committee as President, 2020

2019 AAPM Committee Membership

- Member, Executive Committee, as President-Elect Designate, 7/23/2018 – 12/31/2018, as President - Elect, 2019
- Member, Board of Directors, as President-Elect Designate, 7/23/2018 – 12/31/2018, as President- Elect, 2019
- Member, Strategic Planning Committee of the Board (SPC), as President-Elect Designate, 7/23/2018-12/31/2018, as President- Elect, 2019
- Member, Corporate Advisory Committee (CAB) as President- Elect, 2019

- Chair, Ad Hoc Committee for defining the structure, charges and budget for 2020 of the International Committee (IC) and its subcommittees (SCs) (AHIC)
- Member, Administrative Council as Guest, 2019
- Member, Education Council as Guest, 2019
- Member, Science Council as President - Elect, 2019
- Member, Professional Council as Guest, 2019
- Member, Finance Committee as President - elect, 2019
- Member, Therapy Physics Committee as Guest, 2019

Pre-2019 AAPM Committee Membership

- Chair, Task Group 100, Radiation therapy quality management, 2003 - 2016
- Member, Task Group 51, External Beam Dosimetry protocol, 1992 - 1999
- Member, Task Group 70, Recommendations for clinical electron beam dosimetry, 2001 - 2009
- Member, Task Group 71, Monitor Unit calculation, 2001 - 2012
- Member, Task Group 66, Quality assurance for CT Simulator, 2001 - 2003
- Member, Task Group 48, Intra-operative electron beam radiation therapy
- Member, Task Group 155, Small field dosimetry
- Member, Third party Brachytherapy source calibration report, 2008
- Member, Supplement to the 2004 update of TG43 report, 2007
- Member, AAPM recommendations regarding the impact of implementing the 2004 TG43 report on dose specification for 103Pd and 125I for interstitial brachytherapy, 2005
- Member, Update of Task Group 43 report: A revised protocol for brachytherapy dose, 2004
- Member, Quality Assurance for Clinical Trials: A Primer for Physicists, 2004
- Reviewer of AAPM Annual Meeting Abstracts for 2004, 2006-2021
- Chairman, Therapy Physics Committee, 2012 – 2017
- Vice- Chairman, Therapy Physics Committee, 2006 – 2011

- Member, Therapy Physics Committee, 2005 – 2005
- Member, Radiation Therapy Committee, 2000 – 2004
- Vice-Chairman, Science Council, 2012 – 2017
- Member, Science Council, 2006 – 2011
- Member, Administrative Council, 2016 – 2018
- Member as Liaison from Science Council to Professional Council, 1994 – 1999
- Liaison to Professional Council from Science Council, 1994 - 1999
- Chairman, Calibration Laboratory Accreditation Sub-Committee, 2001 – 2005
- Board member-at-large, Board of Directors, 2012 – 2014
- Member, Board of Directors, 2012 – 2017
- Member, International Research and Training Coordination Subcommittee, 2017 – 2020
- Member, International Training and Research Coordination Subcommittee, 2017 – 2019
- Member, Latin American Affairs Subcommittee, 2017 – 2019
    - Member, Unit 36 - Latin American Affairs Newsletter (UN36), 2018-2021
- Member, Work Group on Implementation of Cooperative Agreements between the American Association of Physicists in Medicine and other National and International Medical Physics Organizations, 2016 – 2019
- Member, Working Group on Task Group Review Streamlining, 2016 – 2019
- Member, Science Council Associates Mentorship Program, Mentor to James Renaud, 2016 – 2017
- Co-Chair, Workgroup on the Implementation of TG-100, 2016 – 2018
- Chair, Workgroup on the Implementation of TG-100 (WG100), 2018
    - Member, Workgroup on the Implementation of TG-100 (WG100), 2019
    - Member, Unit no. 37 -Developing Repository Proposal (UN37) 2018 – 2021
    - Member, Unit no. 38 – Review of Workgroup 100 workshops (UN38), 2018 – 2021

- Member, Ad Hoc Committee for the Implementation of TG-100 Report, 2015
- Member – 2015 TPC Chair, Ad Hoc Committee on AAPM Reports Integration, 2014 -2016
- Member – Liaison to IAEA, International Affairs, 2013 – 2018
- Liaison – IAEA, Government and Regulatory Affairs, 2013 – 2018
- Liaison – IAEA, Government and Regulatory Affairs Policy Sub-Committee, 2013 – 2015
- Liaison – International Atomic Energy Agency, International Educational Activities Committee, 2013 – 2016
- Guest – Science Council Vice Chair, Finance Committee, 2012 – 2017
- Member, Radiation Oncology Medical Physics Education Subcommittee, 2011 – 2014
- Member, Working Group on Dosimetry Calibration Protocol for Beams that are Not Compliant with TG-51, 2007 – 2009, 2011 – 2013
- Member, Task Group No. 131 (Medical Physics Training in Developing Countries in the Region), 2010 – 2013
- Committee Chair, Ad Hoc Committee on Centers for Radiologic Physics, 2010
- Member – Vice-Chair, TPC, Therapy Emerging Technology Assessment Working Group, 2008 – 2011
- Member, Low Energy Brachytherapy Source Calibration, 2006 – 2008
- Member, Calibration Laboratory Accreditation Subcommittee, 2006
- Liaison from ADCL, Brachytherapy Subcommittee, 2005 -2006
- Member, Low Energy Brachytherapy Source Dosimetry Work Group, 2005
- Member as Chair of TG100, Work Group on Prevention of Errors in Radiation Oncology, 2003 – 2016
- Member, Photon-Emitting Brachytherapy Dosimetry Subcommittee, 2003 – 2004
- Member – RTOG, QA Physics of Cooperative Trials Subcommittee, 2001 – 2004
- Member, Exchange Scientist Program Subcommittee, 2000 – 2006
- Liaison – Bangladesh, Asian Oceanic Affairs Subcommittee, 1998 – 2006

- Consultant – Bangladesh (T-01), International Scientific Exchange Programs Subcommittee, 1997 - 2006
- Member, Ethics Committee, 1994 – 1999
- Individual Appointment, Liaison to International Atomic Energy Agency, 2013 – 2017
- Co-Chair, AAPM Summer School on Quality and Safety in Radiation Therapy, 2013
- Member as Liaison from Science Council of Science Council, RSNA Program Committee, 1994-1999
- Chair/Co-Chair and Faculty on Workshop on TG100 held at: Penn-Ohio Chapter meeting, Cleveland, Ohio; Florida Chapter Meeting, Florida; Cape Town, South Africa (2013); World Congress – Toronto (2015); Mexico City, Mexico (2015); Riyadh, Saudi Arabia (2016); Spring Clinical Meeting of AAPM (2015); Certificate Course at AAPM, Washington DC (2016); Hobart, Australia (2017).
- Faculty, IAEA Workshop on Small Field Dosimetry, Chicago, 2016
- Faculty, IAEA Workshop on Beam Calibration held in Saudi Arabia, 2010
- Faculty, IAEA Workshop on Beam Calibration held in Bangladesh, 2014
- Faculty, Workshop on Small Field Dosimetry, Rio de Janiero, 2017
- Co-Chair, Local Arrangement Committee, AAPM Annual Meeting, Philadelphia, 1996
- President, Delaware Valley Chapter of the AAPM, 1995, 1996
- Secretary-Treasurer, Delaware Valley Chapter of the AAPM, 1993, 1994

AMERICAN SOCIETY FOR RADIATION ONCOLOGY (ASTRO) ACTIVITIES

- Member, Leadership Team, Radiation Physics Committee, American Society for Therapeutic Radiology and Oncology (ASTRO), 2003-2004
- Member, Radiation Physics Committee of the Science Council, American Society for Therapeutic Radiology and Oncology (ASTRO), 2011-2014

- Member, Multidisciplinary Q&A Subcommittee, American Society for Therapeutic Radiology and Oncology (ASTRO), 2013-2014
- Member, Clinical, Translational and Basic Science Advisory Committee, American Society for Therapeutic Radiology and Oncology (ASTRO), 2013-2014
- Member, Clinical, Translational and Basic Science Advisory Committee, American Society for Therapeutic Radiology and Oncology (ASTRO), 2014-2015
- Reviewer of ASTRO Annual Meeting Abstracts for 2008-2016

RADIATION THERAPY ONCOLOGY GROUP (RTOG) ACTIVITIES

- Member, Medical Physics Committee, Radiation Therapy Oncology Group (RTOG) 1997-2004
- Member, Quality Control Committee, Radiation Therapy Oncology Group (RTOG) 1997-2004
- Member, Image Guided Radiotherapy Committee, Radiation Therapy Oncology Group (RTOG) 2000- 2004
- Member, Research Strategy Committee, Radiation Therapy Oncology Group (RTOG) 1997-2004
- Member, Membership Evaluation Committee, Radiation Therapy Oncology Group (RTOG) 1997-2004

INTERNATIONAL COMMITTEE ACTIVITIES

- Consultant, IAEA Standing Advisory Group, "Scientific Committee of the IAEA/WHO SSDL Network", 1996
- Member, IAEA Task Force responsible for producing a new International Code of Practice based on Standard of Absorbed Dose-to-Water, TRS398, 1997-2000.
- Consultant, IAEA Standing Advisory Group, "Scientific Committee of the IAEA/WHO SSDL Network", 2000.

- Consultant, IAEA Consultants Technical Meeting on IMRT, Vienna, Austria, June 2006
- Consultant, IAEA Consultants Meeting on the Preparation of Guidelines on Transition from Conventional to 3D Conformal Radiotherapy Programme, IAEA, Vienna, 25-29 September 2006
- Consultant, IAEA Consultants Meeting for the Dosimetry CoP: Small fields and Novel Beams, December 2007
- Consultant, IAEA Consultants Meeting on Developing Training Materials To Support the Implementation of 3D Conformal radiotherapy and Intensity Modulated Radiotherapy, IAEA, Vienna, 4-8 October 2010
- Consultant, IAEA Consultants Meeting on Development of Guidelines for Dosimetry Measurements for small and Irregular Fields, IAEA, Vienna, 31 January – 4 February 2011
- Advisor, South Asian Association for Regional Cooperation (SAARC) Federation of Oncologists, 2013- present
- Member, Awards and Honors Committee, International Organization of Medical Physics (IOMP), 2013- 2015
- Consultant, Organizing Committee, IAEA International Conference on Advances in Radiation Oncology 2017 (ICARO-2)
- Consultant, Organizing Committee, IAEA International Symposium on Standards, Applications and Quality Assurance in Medical Radiation Dosimetry IDOS 2019; 2017-2018
- Member, International Advisory Committee, IUPESM World Congress on Medical Physics and Biomedical Engineering 2021 (WC2021), May 30 – June 4, 2021, Singapore.

EDITORIAL ACTIVITIES

- Member of the International Advisory Board for Physics in Medicine and Biology, 2002 – 2005
- Founding Board member of the Editorial Board of the Journal of Biomedical Physics and Engineering Express, 2015-2016
- Reviewer and Guest Associate Editor for the Journal of Medical Physics
- Reviewer for the International Journal of Radiation Oncology, Biology, Physics
- Reviewer for the Journal of Radiation Oncology Investigations

AAPM SUMMER SCHOOL ACTIVITIES

- co-Director, 2022 AAPM summer school on "Small Field Dosimetry" with Dr. Jan Seuntjens. This summer school will be held in Dallas, Texas. June 7-12, 2021.
- co-Director of the 2013 summer school on "Quality and Safety in Radiotherapy". The summer school was held in Colorado Springs, Colorado, on June 16-20, 2013.

SPECIAL GLOBAL EDUCATION AND TRAINING ACTIVITIES

- In collaboration with Oncology Club, Bangladesh and Radiation Knowledge (a Limited Liability Company), I spearheaded the organization of a virtual Radiation Oncology Symposium with a focus on Educational and Planning Challenges for SAARC countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka). The symposium occurred between March 6, 2021 – April 27, 2021.
- In collaboration with Global Health Catalyst (a Harvard University based organization) and Radiation Knowledge (a Limited Liability Company), and EduCase, I co-organized a hybrid global education, contouring, and Treatment Planning activity/competition program on "Premier Hypofractionated

Radiotherapy Education Course ". The program was held between July 8th and September 3rd, 2022.

EXPERT MISSION

- Performed a site visit in Bangladesh as a World Health Organization (WHO) expert in Medical Physics to evaluate the up gradation of National Institute of Cancer Research & Hospital (NICR&H), Dhaka, Bangladesh from 50 beds to 300 beds and making it as a "Center of Excellence" for the country. The site visit took place from December 15-19, 2003 and consisted of a "Team of Experts of different specialties" from different countries.
- Performed an expert mission in Bangladesh on behalf of IAEA to "Assess implementation of 3-D conformal radiotherapy and related QA/QC". The site visit took place from December 11-13, 2012.
- Performed an expert mission in Bangladesh on behalf of IAEA to conduct a 4-day workshop on IAEA TRS 398 Code of Practice as part of the National training program on radiation oncology. The workshop took place from November 18-21, 2014

VISITING PROFESSOR

- Department of Radiation Oncology, University Hospitals Seidman cancer Center, Case Western Reserve University, Cleveland, Ohio, January 5-6, 2015.
- Medical Physics Unit, McGill University, Cedars Cancer Centre, MUHC, Montreal, Canada, October 9, 2018.

GRANTS

Completed:

Research and Development Award, Varian Oncology Systems

Co PI: M. Saiful Huq

Main goal: 1) To study Inter-fractional reproducibility study of lung tumor inter-fractional motion, ii) To study inter-fraction motion induced dosimetric impacts in breast 3D radiation treatment, iii) Implementation of six-degree target shift correction and iv) To determine whether a modified gating method can be substituted for a 4DCT scan-based motion management technique

Period: 04/01/2005 – 03/31/2008

Total amount: $500,000

American College of Radiology, PA Tobacco Grant

Co-PI: M. Saiful Huq

Main goal: Dynamic Tumor Volumetric Regression Analysis Using Cone Beam and PET-CT in NSCLC

Period: 01/01/2006 – 12/31/2008

Total amount: $239,588

Research and Development Award, Varian Oncology Systems

Co PI: M. Saiful Huq

Main goal: To perform an outcome Analysis for SRS Treatment of Lung Cancer Using 4D CT, PET, RPM, and Body Fix immobilization System

Period: 03/26/2009 – 03/25/2011

Total amount: $750,000

American College of Radiology Formula Grant

PI: M. Saiful Huq

Main goal: Biological modeling of Tumor Control and Normal Tissue Complication for NSCLC treated with SABR

Period: 01/2012 – 12/2015

Total amount: $100,000

Chromologic/JPF-039-MLV

PD/PI: Claude Rogers

Co-investigator: M. Saiful Huq

Main goal: Radioprotection by JP4-039-MLV nanoparticle drugs

Period: 08/16/2021 – 02/15/2022

Total amount: $82,434.00

Calendar Months: 0.12 months for one year

Scanditronix-Wellhöfer

PI: M. Saiful Huq

Main goal: Evaluate Cylindrical and Plane-Parallel Ionization Chambers

Period: 10/1999 – 10/2000

Total amount: $ 3,000

Current:

NIH/NIAID 1R41 AI157357 (ChromoLogic, LLC) Funded

PD/PI: Claude Rogers

Co-investigator: M. Saiful Huq

Main goal: Mitigation of Ionizing Irradiation-Induced Intestinal Damage by Second-Generation Probiotics LR-IL-22 and LR-IFN- β

Period: 04/01/21 – 03/31/23

Total amount: $360,000

Calendar Months: 0.60 person months for each of two years

NIH/NIAID 75N93021C00008 (ChromoLogic, LLC.) Funded

PD/PI: Claude Rogers

Co-investigator: M. Saiful Huq

Main goal: Development of Radiation/Nuclear Medical Countermeasures (MCMs)

Period: 03/16/21 – 03/15/24

Total amount: $536,505

Calendar Months: 0.60 months for each of three years

Pending:

NIH/NIAID U01AI172885-01

PI: Joel S. Greenberger

Co-investigator: M. Saiful Huq

Main goal: LR-IL-22 for Mitigation and Management of Radiation Injuries

Period submitted for: 02/01/2023 – 01/31/2028

Total amount: $2,639,033.00

Calendar Months: 3.0 person months for each of five years

US Army/DOD PR220156

PD/PI: Amitava Mukherjee

Co-investigator: M. Saiful Huq

Main goal: Mitigation of Pulmonary Fibrosis from Cancer Radiotherapy, by Inhibition of Tyrosine Kinase Fgr

Period: 07/01/2023 – 06/30/2025

Total amount: $318,000.00

Calendar Months: 0.36 months for each of two years

US Army/OC22004

PD/PI: Joel S. Greenberger

Co-investigator: M. Saiful Huq

Main goal: Second-Generation Probiotic, Lactobacillus Reuteri Producing IL 22(LR-IL22), Induces Immunotherapy Targets in Ovarian Cancer

Period: 04/01/2023 – 03/31/2026

Total amount: $954,000.00

Calendar Months: 0.48 months for each of three years

NIH/NCI

PTE PI: Stepehn Avery

Sub-PI: M. Saiful Huq

Global Health Catalyst Summit

Period: 12/01/2023 – 11/30/2028

Total amount: $150,000.00

Calendar Months: 0.48 months for each of three years

RESEARCH ADVISING AND/OR MENTORING (Students, Physics residents, Postdocs)

- Dr. Chihray Liu, Professor of Radiation Oncology, University of Florida, Gainesville, Fl
- Dr. Sharad K Saraf, Chief Medical Physicist, Radiation Oncology, Kings County Hospital Center, Brooklyn, NY
- Dr. John W. Sweet Jr., Director of Medical Physics/RSO, Radiation Oncology Center, Philadelphia, Pennsylvania, PA
- Dr. Ning J. Yue, Professor/Chief of Physics/Exec Vice Chair, Radiation Oncology, Rutgers University, New Brunswick, NJ
- Dr. Yan Yu, Professor, Radiation Oncology, Thomas Jefferson University, Philadelphia, PA

- Dr. Haisen Li, Medical Physicist, Henry Ford Health System, Detroit, MI
- Dr. Anh H Le, Assistant Professor/Medical Physicist, Roswell Park Cancer Institute, Buffalo, NY
- Dr. Chuxiong Ding, Associate Professor, Radiation Oncology, UT Southwestern Medical Center, Dallas, TX
- Dr. Bo Zhao, Associate Attending, Radiation Oncology, Memorial Sloan Kettering Cancer Center, NY
- Dr. Yongqian Zhang, Clinical Assistant Professor, UPMC Hillman Cancer Center, Pittsburgh, PA
- Dr. Min-Sig Hwang, Medical Physicist, Alleghany Health Network, Pittsburgh, PA
- Dr. Hayeon Kim, Clinical Associate Professor, UPMC Hillman Cancer Center, Pittsburgh, PA
- Mr. Kevin Fallon, Instructor, UPMC Hillman Cancer Center, Pittsburgh, PA
- Mr. Chris Houser, Instructor, UPMC Hillman Cancer center, Pittsburgh, PA
- Dr. Weihua Fu, Clinical Assistant Professor, UPMC Hillman Cancer Center, Pittsburgh, PA
- Dr. Travis McCaw, Clinical Assistant Professor, UPMC Hillman Cancer Center, Pittsburgh, PA
- Dr. Peng (Troy) Teo, Postdoc Fellow
- Dr. Pavel Kosterin, Therapy medical physicist, Radiation Oncology, Fluke Electronics Corporation, Philadelphia, PA
- Dr. Jina Chang, Clinical Assistant Professor, UPMC Hillman Cancer Center, Pittsburgh, PA
- Dr. Naveed Islam, Clinical Assistant Professor, UPMC Hillman Cancer Center, Pittsburgh, PA
- Ms. Maria diMayorca, Staff Medical Physicist, New York University, NY
- Dr. Meysam Tavakoli, Clinical Medical Physics Resident, UPMC Hillman Cancer Center, Pittsburgh, PA

- James Michael Taylor, Clinical Medical Physics Resident, UPMC Hillman Cancer Center, Pittsburgh, PA
- Christopher M Tyerech, Clinical Medical Physics Resident, UPMC Hillman Cancer Center, Pittsburgh, PA
- Joseph L Shields, Clinical Medical Physics Resident, UPMC Hillman Cancer Center, Pittsburgh, PA
- Dr. Flavia Cristina Texitiera, Medical Physicist, Rio de Janiero, Brazil
- Mr. Md. Selim Reza, Medical Physicist, Dhaka, Bangladesh
- Dr. A.F.M. Kamaluddin, Assistant Professor, Dhaka, Bangladesh

INVITED PRESENTATIONS (NATIONAL & INTERNATIONAL)

1. **Huq, M.S.**: Intraoperative Radiotherapy Task Group Update; Refresher Course at the 1996 Annual meeting of the American Association of Physicists in Medicine, July 21-25, 1996, Philadelphia, PA.
2. **Huq, M.S.**: Calibration of high energy photon and electron beams: past, present and future; Department of Radiation Therapy, Medical College of Ohio, Toledo, Ohio, November 8, 1996.
3. **Huq, M.S.**: A status report on the absorbed dose-to-water based beam calibration protocol under consideration by the AAPM; International Atomic Energy Agency, Vienna, Austria, November 25, 1996.
4. **Huq, M.S.:** The role of medical physicists in the health care industry; Spring colloquium series in the physics department of the Indiana University of Pennsylvania, Indiana, PA, on April 18, 1997.
5. **Huq, M.S.**: Measurement of central axis depth dose curves in plastic phantoms for electron beams; Symposium on Clinical Electron Beam Dosimetry; Mid-Atlantic Chapter of the AAPM, Oct. 3, 1997.
6. **Huq, M.S.:** RTOG QA program; Workshop on QA in clinical trials, sponsored by NCI, Houston, TX, March 23-24, 1998.

7. **Huq, M.S.,** Clinical applications of multi-leaf collimators as replacement for blocks and beyond; Fifth annual radiation oncology conference, Leigh Valley Hospital & Health Network, PA, April 8-14, 1999.
8. **Huq, M.S.**: Beam calibration using absorbed dose standards, 16th Annual Meeting and Workshop; The practice of radiation oncology physics in the next millennium, American College of Medical Physics, Aspen, Colorado, May 18-19, 1999.
9. **Huq, M.S.:** AAPM's TG-51 protocol for clinical reference dosimetry of high-energy photon and electron beams; Ohio River Valley Chapter of the AAPM, Oct. 16, 1999.
10. **Huq, M.S.**: AAPM's TG-51 protocol for clinical reference dosimetry of high-energy photon and electron beams; New Jersey Chapter of the AAPM, Oct. 26, 1999.
11. **Huq, M.S.**: AAPM's TG-51 protocol for clinical reference dosimetry of high-energy photon and electron beams; Delaware River Valley Chapter of the AAPM, Dec. 22, 1999.
12. **Huq, M.S.:** Photon beam calibration using the IAEA Code of Practice TRS-277; International workshop on medical physics in radiotherapy and nuclear medicine; Bangladesh Medical Physicists Association; Dhaka, Bangladesh Dec. 6-10, 1999.
13. **Huq, M.S.**: Beam calibration using the IAEA CoP based on standards of absorbed dose to water; International workshop on medical physics in radiotherapy and nuclear medicine; Bangladesh Medical Physicists Association held in Dhaka, Bangladesh Dec. 6-10, 1999.
14. **Huq, M.S.**: Immobilization and setup verification; International workshop on medical physics in radiotherapy and nuclear medicine; Bangladesh Medical Physicists Association; Dhaka, Bangladesh Dec. 6-10, 1999.
15. **Huq, M.S.:** Photon and electron beam calibration using the IAEA code of practice based on standards of absorbed dose-to-water, Second Beijing International Congress on Medical Radiation Physics, Beijing, May 27-29, 2000.
16. **Huq, M.S.:** AAPM's TG-51 protocol for clinical reference dosimetry of high-energy photon and electron beams; comparison with the IAEA CoP; Second Beijing International Congress on Medical Radiation Physics, Beijing, May 27-29, 2000.

17. **Huq, M.S**.: Implementation of the new IAEA Code of Practice based on standards of absorbed dose to water. Consultants' Meeting to develop the procedures for testing and implementing the Code of Practice based on standards of absorbed dose to water in hospitals in Member States; International Atomic Energy Agency, Vienna, Austria, December 11-13, 2000.
18. **Huq, M.S**.: Radiation treatment machines: Linear accelerators, AAPM/IOMP/BMPA Workshop on Radiation Therapy Physics; Bangladesh Medical Physics Association and ISEP/AAPM; Dhaka, Bangladesh January 29, - February 3, 2001.
19. **Huq, M.S.,** Beam calibration using the AAPM-TG-51 protocol, AAPM/IOMP/BMPA Workshop on Radiation Therapy Physics; Bangladesh Medical Physics Association and ISEP/AAPM; Dhaka, Bangladesh January 29, - February 3, 2001.
20. **Huq, M.S.,** Commissioning and QA of linear accelerators, AAPM/IOMP/BMPA Workshop on Radiation Therapy Physics; Bangladesh Medical Physics Association and ISEP/AAPM; Dhaka, Bangladesh; January 29, - February 3, 2001.
21. **Huq, M.S.,** Clinical Implementation of the AAPM TG-51 protocol, 6th Biennial ESTRO Meeting on Physics for Clinical Radiotherapy, Seville, Spain, Sept. 17-20, 2001.
22. **Huq, M.S**., Codes of Practice for the dosimetry of high-energy photon and electron beams: A comparison of the IAEA TRS-398, AAPM TG-51, IAEA TRS-277 and TRS-381 codes of practice, 17th symposium of the Belgian Hospital Physicists Association, Brussels, Belgium, Nov. 30-Dec. 1, 2001.
23. **Huq, M.S.,** Clinical application of IMRT, 10th Annual Dosimetry/Physics Symposium, MCP Hahnemann University, March 7-10, 2002.
24. **Huq, M.S.,** Practical Implementation of TG-51 protocol, Refresher Course at the 2002 Annual meeting of the American Association of Physicists in Medicine, July 14-18, 2002, Montreal, Quebec, Canada.
25. **Huq, M.S.,** Intercomparisons of dosimetry protocols, International Symposium on Standards and Codes of Practice in Medical Radiation Dosimetry, Nov 25-28, 2002, IAEA, Vienna.

26. **Huq, M.S.,** Everything you wanted to know about the practical Implementation of TG-51 protocol in the clinic; Refresher Course at the 2003 Annual meeting of the American Association of Physicists in Medicine, August 10-14, 2003, San Diego, USA.
27. **Huq, M.S.,** Clinical Implementation of IMRT Technique: The Pittsburgh experience; International Atomic Energy Agency Consultants Technical Meeting on IMRT, June 2006, Vienna, Austria.
28. **Huq, M.S.,** Dosimetry for Small Fields and Novel Beams, May 13-16, 2008, IAEA, Vienna, Austria.
29. **Huq, M.S.,** CT simulator, Joint ICTP-IAEA School on Quality Assurance in Radiotherapy at the Abdus Salam International Centre for Theoretical Physics; November 24-December 5, 2008, Trieste, Italy.
30. **Huq, M.S.,** Novel technologies, Joint ICTP-IAEA School on Quality Assurance in Radiotherapy at the Abdus Salam International Centre for Theoretical Physics; November 24-December 5, 2008, Trieste, Italy.
31. **Huq, M.S.,** Patient specific IMRT QA, Joint ICTP-IAEA School on Quality Assurance in Radiotherapy at the Abdus Salam International Centre for Theoretical Physics; November 24-December 5, 2008, Trieste, Italy.
32. **Huq, M.S.,** Small beam dosimetry, Joint ICTP-IAEA School on Quality Assurance in Radiotherapy at the Abdus Salam International Centre for Theoretical Physics; November 24-December 5, 2008, Trieste, Italy.
33. **Huq, M.S.,** A method for evaluating QA needs in radiation therapy, Connecticut Chapter of the AAPM, March 20, 2009.
34. **Huq, M.S.,** Implementing 3D conformal radiotherapy in clinical practice: Recommendations of IAEA TECDOC 1588; National Institute of Cancer Research and Hospital, Dhaka, Bangladesh, July 15, 2009.
35. **Huq, M.S.,** Radiotherapy in Bangladesh – potential role of BAEC as a regulatory body; Bangladesh Atomic Energy Commission, July 20, 2009.
36. **Huq, M.S.,** TG-51 outline; AAPM Summer School; Colorado College, Colorado, June 21-25, 2009.

37. **Huq, M.S.,** Application of risk-based analysis methods to radiotherapy quality management; 2009 Fall Symposium on Quality Assurance and Other Challenges in State-of-the-Art Radiation Therapy, Ohio River Valley, and Penn-Ohio chapters of the AAPM, October 2-3, 2009.
38. **Huq, M.S.,** Application of risk-based analysis methods to radiotherapy quality management; Rocky Mountain chapter meeting of the AAPM, February 6, 2010.
39. **Huq, M.S.,** 3D CRT: A new opportunity for cancer treatment in Bangladesh; Radiation Oncologists Society in Bangladesh, Dhaka, Bangladesh, March 10, 2010.
40. **Huq, M.S.,** International code of practice for radiotherapy dosimetry based on absorbed dose to water standards; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, March 2010.
41. **Huq, M.S.,** Cavity theory and absorbed dose-to-water based formalism; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, March 2010.
42. **Huq, M.S.,** Calibration of high energy photon beams; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, March 2010.
43. **Huq, M.S.,** Calibration of high energy electron beams; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, March 2010.
44. **Huq, M.S.,** Accidents in radiation therapy: First do no harm; Grand Round on Radiation Safety, UPMC Cancer Centers, Pittsburgh, PA, May 2010.
45. **Huq, M.S.,** Failure mode and effect analysis (FMEA): Practical example in IMRT; ESTRO 29, Barcelona, September 13, 2010.
46. **Huq, M.S.,** Radiation oncology quality assurance in the modern era: How much is enough? IAEA Human Health Seminar Series; Vienna, Austria, October 4, 2010.

47. **Huq, M.S.,** Risk analysis in modern radiotherapy: Part I; XIII Radiotherapy Brazilian Society Congress, Rio de Janiero, Brazil, June 22-25, 2011.
48. **Huq, M.S.,** Risk analysis in modern radiotherapy: Part II; XIII Radiotherapy Brazilian Society Congress, Rio de Janiero, Brazil, June 22-25, 2011.
49. **Huq, M.S.,** Challenges associated with small field dosimetry; XIII Radiotherapy Brazilian Society Congress, Rio de Janiero, Brazil, June 22-25, 2011.
50. **Huq, M.S.,** New paradigms for quality management in radiation therapy, AAPM Summer School, Burnaby, British Columbia, Canada, August 4-9, 2011.
51. **Huq, M.S.,** Prioritization of quality management activities based on what is reasonably achievable and optimally beneficial to patients, ICRP Symposium, Maryland, USA, October 24-26, 2011.
52. **Huq, M.S.,** New technologies in modern radiation therapy: advanced techniques, Karolinska University Hospital, Stockholm University, Stockholm, November 7, 2011.
53. **Huq, M.S.,** Challenges associated with small field dosimetry; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 27 – March 1, 2012.
54. **Huq, M.S.,** New technologies in modern radiation therapy: advanced techniques; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 27 - March 1, 2012.
55. **Huq, M.S.,** Stereotactic body radiation therapy (SBRT): Physical aspects and associated challenges; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 27 - March 1, 2012.
56. **Huq, M.S.,** Accidents in radiation therapy: first do no harm; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 27 - March 1, 2012.

57. **Huq, M.S.,** American Association of Physicists in Medicine; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 27 - March 1, 2012.
58. **Huq, M.S.,** Treatment planning in radiation therapy: An overview, Fifth annual dosimetry symposium, UPMC CancerCenter, Pittsburgh, PA, April 29, 2012.
59. **Huq, M.S.,** An overview of intensity modulated radiation therapy; XVII Congresso Brasileiro De Fisica Medica, Salvador, Brazil, August 8-11, 2012.
60. **Huq, M.S.,** Intensity modulated radiation therapy – challenges and remedies; XVII Congresso Brasileiro De Fisica Medica, Salvador, Brazil, August 8-11, 2012.
61. Huq, M.S., Clinical implementation of volumetric IMRT (Rapid Arc); XVII Congresso Brasileiro De Fisica Medica, Salvador, Brazil, August 8-11, 2012.
62. **Huq, M.S.,** Tools and techniques for process-based safety; SAMS session at the 54th Annual meeting of the AAPM, July 29-Aug 2, 2012, Charlotte, NC, USA.
63. **Huq, M.S.,** Gamma Knife vs linac-based technologies (TrueBeam, Trilogy, CyberKnife, Novalis, etc): Is one technology better than the other for radiosurgery? The inaugural stereotactic radiosurgery and stereotactic body radiotherapy symposium, UPMC Beacon Hospital, Dublin, Ireland, September 22, 2012.
64. **Huq, M.S.,** Stereotaxi and radiosurgery; The inaugural stereotactic radiosurgery and stereotactic body radiotherapy symposium, UPMC Beacon Hospital, Dublin, Ireland, September 22, 2012.
65. **Huq, M.S.,** Is there hope for cancer patients? The past, the present and the future of radiotherapy; 7th SAARC Federation of Oncologists international cancer conference, Dhaka, Bangladesh, December 14-15, 2012.
66. **Huq, M.S.,** Challenges and way forward in radiation equipment and medical physics; 7th SAARC Federation of Oncologists international cancer conference, Dhaka, Bangladesh, December 14-15, 2012.
67. **Huq, M.S.,** Cavity theory, Group fellowship training for quality assurance and quality control in radiotherapy, Argonne National Lab, Chicago, USA, 18 Feb – Mar 1, 2013.

68. **Huq, M.S.,** Calibration of high energy photon beams, Group fellowship training for quality assurance and quality control in radiotherapy, 18 Feb – Mar 1, 2013, Argonne National Lab Chicago, USA, 18 Feb – Mar 1, 2013.
69. **Huq, M.S.,** Calibration of high energy electron beams, Group fellowship training for quality assurance and quality control in radiotherapy, 18 Feb – Mar 1, 2013, Argonne National Lab Chicago, USA, Feb 18 – Mar 1, 2013.
70. **Huq, M.S.,** Medical physicists beyond borders, Honorable James G. Kerieakes Keynote lecture, Spring Symposium of the Ohio River Valley Chapter of the AAPM, March 1-2, 2013, Erlanger, KY, USA, March 1-2, 2013.
71. **Huq, M.S.,** TG100 – Process QA with FMEA, QA and Dosimetry Symposium, Exploring the future of QA and dosimetry, Orlando, Florida, USA, April 5-6, 2013.
72. Huq, M.S., Tools for developing a quality management program in radiation oncology, Sixth annual dosimetry symposium, UPMC CancerCenter, Pittsburgh, PA, May 18, 2013.
73. **Huq, M.S.,** Risk assessment introduction - TG100, 2013 AAPM summer school, Quality and Safety in Radiotherapy: Learning the New Approaches in TG100 and Beyond, Colorado College, Colorado Springs, Colorado, USA, June 16-20, 2013.
74. **Huq, M.S.,** Fault trees, 2013 AAPM summer school, Quality and Safety in Radiotherapy: Learning the New Approaches in TG100 and Beyond, Colorado College, Colorado Springs, Colorado, USA, June 16-20, 2013.
75. **Huq, M.S.,** Exercise - Fault tree, 2013 AAPM summer school, Quality and Safety in Radiotherapy: Learning the New Approaches in TG100 and Beyond, Colorado College, Colorado Springs, Colorado, USA, June 16-20, 2013.
76. **Huq, M.S.,** Introduction to risk assessment and safety processes, Therapy symposium on Formal Radiation Therapy Safety Processes at the 55th Annual meeting of the AAPM, Indianapolis, IN, USA, Aug 5-Aug 8, 2013.
77. **Huq, M.S.,** AAPM TG100: A new paradigm for quality management in radiation therapy, Joint Ohio River Valley Chapter and Penn Ohio chapter Fall Symposium, Beachwood, Ohio, USA, October 11-12, 2013.

78. **Huq, M.S.,** How to deal with moving targets: role of imaging in the management of respiration induced tumor motion, 2nd Annual UPMC Beacon Hospital and UPMC International Stereotactic Radiosurgery and Stereotactic Body radiotherapy Symposium, Dublin, Ireland, October 18 – 19, 2013.
79. **Huq, M.S.,** Is hypo-fractionation going to be the standard of care in the next decade? 2nd Annual UPMC Beacon Hospital and UPMC International Stereotactic Radiosurgery and Stereotactic Body radiotherapy Symposium, Dublin, Ireland, October 18 – 19, 2013.
80. **Huq, M.S.,** Hazard or risk-based quality management program: the next frontier for improving quality and patient safety", Oncology Grand rounds, London Health Sciences Centre, London Regional cancer Program, London, Ontario, Canada, October 29, 2013.
81. **Huq, M.S.,** Introduction to risk management and process mapping, National Training and Workshop on the Use of ICT in the Management of Radiation Incidents in Clinical Practice, Cape Town, South Africa, November 26-29, 2013.
82. **Huq, M.S.,** Failure Mode and Effects Analysis, National Training and Workshop on the Use of ICT in the Management of Radiation Incidents in Clinical Practice, Cape Town, South Africa, November 26-29, 2013.
83. **Huq, M.S.,** Fault Tree Analysis, National Training and Workshop on the Use of ICT in the Management of Radiation Incidents in Clinical Practice, Cape Town, South Africa, November 26-29, 2013.
84. **Huq, M.S.,** Design of Quality Management Program, National Training and Workshop on the Use of ICT in the Management of Radiation Incidents in Clinical Practice, Cape Town, South Africa, November 26-29, 2013.
85. **Huq, M.S.,** Incident Management Program –UPMC CancerCenter, National Training and Workshop on the Use of ICT in the Management of Radiation Incidents in Clinical Practice, Cape Town, South Africa, November 26-29, 2013.

86. **Huq, M.S.,** International guidelines for notification of incidents, National Training and Workshop on the Use of ICT in the Management of Radiation Incidents in Clinical Practice, Cape Town, South Africa, November 26-29, 2013.
87. **Huq, M.S.,** Calibration of Photon and electron beams following the recommendations of TRS398; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 16 – February 20, 2014.
88. **Huq, M.S.,** Imaging for stereotactic radiosurgery and stereotactic Ablative Body Radiotherapy; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 16 – February 20, 2014.
89. Huq, M.S., IMRT – an overview; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 16 – February 20, 2014.
90. **Huq, M.S.,** Who's Who at ICRM: American Association of Physicists in Medicine (AAPM); International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 16 – February 20, 2014.
91. **Huq, M.S.,** Hazard or risk-based quality management program: the next frontier for improving quality and patient safety; International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia, February 16 – February 20, 2014.
92. **Huq, M.S.,** Radiation therapy: state of the art and the future, Seventh annual dosimetry symposium, UPMC CancerCenter, Pittsburgh, PA, March 29, 2014.
93. **Huq, M.S.,** Is the use of golden beam data and beam matching a safe strategy, XVI Congresso Da Sociedade Brasileira de Radioterapia, Sao Paolo, Brazil, April 30 – May 3, 2014.

94. **Huq, M.S.,** Tools for risk-based quality management program in radiation therapy, XVI Congresso Da Sociedade Brasileira de Radioterapia, Sao Paolo, Brazil, April 30 – May 3, 2014.
95. **Huq, M.S.,** Small field dosimetry: the challenges and recent progress, XVI Congresso Da Sociedade Brasileira de Radioterapia, Sao Paolo, Brazil, April 30 – May 3, 2014.
96. **Huq, M.S.,** Radiation therapy: state of the art and the future, XVI Congresso Da Sociedade Brasileira de Radioterapia, Sao Paolo, Brazil, April 30 – May 3, 2014.
97. **Huq, M.S.,** Failure Mode and Effects Analysis, Therapy Educational Course on Risk Based Quality Management: TG 100 in action at the 56th Annual meeting of the AAPM, Austin, TX, USA, July 20 - 24, 2014.
98. **Huq, M.S.,** How AAPM Task Groups TGs are born, 2014 AAPM Penn-Ohio chapter Fall Educational Symposium: Thriving and surviving in the Task group Matrix, Pittsburgh, PA, USA, October 17-18, 2014.
99. **Huq, M.S.,** Small field dosimetry, 2014 AAPM Penn-Ohio chapter Fall Educational Symposium: Thriving and surviving in the Task group Matrix, Pittsburgh, PA, USA, October 17-18, 2014.
100. **Huq, M.S.,** Radiation therapy: State of the art and the future, 2014 AAPM Penn-Ohio chapter Fall Educational Symposium: Thriving and surviving in the Task group Matrix, Pittsburgh, PA, USA, October 17-18, 2014.
101. **Huq, M.S.,** Radiation therapy: state of the art and the future; Radiation Oncology Grand Round, Case Western Reserve University, Cleveland, Ohio; January 6, 2015.
102. **Huq, M.S.** Radiation therapy: State of the art and the future, international conference on Physics in Medicine and Clinical Neuroelectrophysiology, Dhaka, Bangladesh, February 19-20, 2015.
103. **Huq, M.S.,** The rollout of AAPM TG100: Getting engaged in risk assessment in the session “Collective efforts to improve patient safety through change, AAPM Spring Clinical Meeting, St Louis, MO, March 7-10, 2015.
104. **Huq, M.S.,** How to develop a risk-based quality management program: The promise of TG100, 2015 DVC AAPM Spring Symposium, Philadelphia, PA, USA, May 15, 2015.

105. **Huq, M.S.,** TG100 – Overview and Introduction, Workshop on "Use of Task Group 100 recommended risk assessment approach to develop a risk-based quality management program in radiation therapy" at the 2015 World Congress on Medical Physics and Biomedical Engineering held in Toronto, Canada, June 7-12, 2015.
106. **Huq, M.S.,** Failure Mode and Effects Analysis, AAPM Annual Meeting, Anaheim, CA, July 12-16, 2015.
107. **Huq, M.S.,** InCise MLC: the first robot-mounted multileaf collimator with 6-degrees of freedom, AAPM Annual Meeting, Anaheim, CA, July 12-16, 2015.
108. **Huq, M.S.,** Process mapping, Workshop on "Use of Task Group 100 recommended risk assessment approach to develop a risk-based quality management program in radiation therapy" at the 2015 World Congress on Medical Physics and Biomedical Engineering held in Toronto, Canada, June 7-12, 2015.
109. **Huq, M.S.,** Radiation oncology: New paradigms and future challenges, Keynote presentation, XX Congresso Brasileiro de Física Médica e Simpósio Internacional de Proteção Radiológica em medicina, Rio de Janiero, Brazil, August 12-14, 2015.
110. **Huq, M.S.,** Radiosurgery of multiple metastases, XX Congresso Brasileiro de Física Médica e Simpósio Internacional de Proteção Radiológica em medicina, Rio de Janiero, Brazil, August 12-14, 2015.
111. **Huq, M.S.,** SBRT of lung and vertebral spine, XX Congresso Brasileiro de Física Médica e Simpósio Internacional de Proteção Radiológica em medicina, Rio de Janiero, Brazil, August 12-14, 2015
112. **Huq, M.S.,** TG100 Overview and introduction, XX Congresso Brasileiro de Física Médica e Simpósio Internacional de Proteção Radiológica em medicina, Rio de Janiero, Brazil, August 12-14, 2015.
113. **Huq, M.S.,** Motion management for SBRT, 3rd Annual UPMC symposium, Rome, Italy, September 18, 2015.
114. **Huq, M.S.,** 3D treatment delivery and dosimetry, 57th Annual Meeting of ASTRO, San Antonio, Texas, October 18-21, 2015.

115. **Huq, M.S.,** TG 100 overview and introduction in the A hands-on workshop on TG 100: the future of quality and safety in radiotherapy, Mexico City, Mexico, October 23-25, 2015.
116. **Huq, M.S.,** Failure Modes and Effects Analysis in the A hands-on workshop on TG 100: the future of quality and safety in radiotherapy, Mexico City, Mexico, October 23-25, 2015.
117. **Huq, M.S.,** Managing quality in the A hands-on workshop on TG 100: the future of quality and safety in radiotherapy, Mexico City, Mexico, October 23-25, 2015.
118. **Huq, M.S.,** An overview of TG100 in the TG 100 Workshop, The 15th Asia-Oceania Congress of Medical Physics, Xi'An, China, November 5-8, 2015.
119. **Huq, M.S.,** Failure Modes and Effects Analysis in the TG 100 Workshop, The 15th Asia-Oceania Congress of Medical Physics, Xi'An, China, November 5-8, 2015.
120. **Huq, M.S.,** Managing quality in the TG 100 Workshop, The 15th Asia-Oceania Congress of Medical Physics, Xi'An, China, November 5-8, 2015.
121. **Huq, M.S.**, Incident reporting and culture of safety: 4th International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center and Intercontinental Hotel, Riyadh, Kingdom of Saudi Arabia, February 21 – February 25, 2016.
122. **Huq, M.S.,** Incident reporting and culture of safety: Plenary talk at the 4th International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center and Intercontinental Hotel, Riyadh, Kingdom of Saudi Arabia, February 21 – February 25, 2016.
123. **Huq, M.S.,** Radiosurgery of multiple metastases: 4th International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center and Intercontinental Hotel, Riyadh, Kingdom of Saudi Arabia, February 21 – February 25, 2016.
124. **Huq, M.S.,** Biologically targeted radiotherapy: a new era in external beam radiation therapy: 4th International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center and

Intercontinental Hotel, Riyadh, Kingdom of Saudi Arabia, February 21 – February 25, 2016.

125. **Huq, M.S.,** Small field dosimetry: Challenges and the new IAEA-AAPM Code of Practice: 4th International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center and Intercontinental Hotel, Riyadh, Kingdom of Saudi Arabia, February 21 – February 25, 2016.
126. **Huq, M.S.,** Update of AAPM TG 51 protocol: 4th International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center and Intercontinental Hotel, Riyadh, Kingdom of Saudi Arabia, February 21 – February 25, 2016.
127. **Huq, M.S.,** Radiation Oncology: New paradigms and future challenges: 4th International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center and Intercontinental Hotel, Riyadh, Kingdom of Saudi Arabia, February 21 – February 25, 2016.
128. **Huq, M.S.,** A 4-hour workshop on TG-100: Failure Modes and Effects Analysis and risk-based approaches to quality management: International Conference on Radiation Medicine: Clinical Applications and Innovative Resources at the King Faisal Specialist Hospital & Research Center and Intercontinental Hotel, Riyadh, Kingdom of Saudi Arabia, February 21 – February 25, 2016.
129. **Huq, M.S.,** New paradigms and future challenges in radiation oncology; Medical Physics Department at Carleton University, Ottawa, Canada, March 8, 2016.
130. **Huq, M.S.,** AAPM TG100: A new paradigm for quality management in radiation therapy; Medical Physics Department at Carleton University, Ottawa, Canada, March 8, 2016.
131. **Huq, M.S.,** New paradigm and future challenges in radiation oncology; Department of Biomedical Physics at the University of Dhaka, Dhaka, Bangladesh, March 23, 2016.

132. **Huq, M.S.,** Radiosurgery of multiple metastases; United Hospital, organized by Oncology Club, Dhaka, Bangladesh, March 27, 2016.
133. **Huq, M.S.,** Charged particle interactions and electron beams; United Hospital, organized by Oncology Club, Dhaka, Bangladesh, March 27, 2016.
134. **Huq, M.S.,** New paradigms and future challenges in radiation oncology; 7th Annual meeting of the Irish Association of Physicists in Medicine Limited, Waterford, Ireland, April 2, 2016.
135. **Huq, M.S.,** Best of ASCO and ASTRO 2015: Physics and patient safety; Conference organized by MEDISPROF, Cluj-Napoca, Romania, June 24-25, 2016.
136. **Huq, M.S.,** Overview of TG100, TG100 Certificate of Completion course: Application of risk analysis methods to radiotherapy quality management, 58th Annual meeting of the AAPM, Washington DC, July 31-Aug 4, 2016.
137. **Huq, M.S.,** Tools for CQI and quality management in radiation therapy, presentation given at the radiation oncology managers meeting of the UPMC CancerCenter network, August 10, 2016
138. **Huq, M.S.,** The report of the Task Group 100 of the AAPM: Application of risk analysis methods to radiotherapy quality management, presentation given at the Mid Atlantic chapter of the AAPM 2016 annual meeting, Baltimore, Maryland, October 14-15, 2016.
139. **Huq, M.S.,** State of the Art technologies for SRS and SBRT in the USA, 4th annual UPMC international symposium, SRS/SBRT challenger compared to traditional radiotherapy, Rome, Italy, October 20-21, 2016.
140. **Huq, M.S.,** Quality and Safety and TG100, Workshop organized by the Oncology Club, Dhaka, Bangladesh, November 18, 2016.
141. **Huq, M.S.,** Keynote speaker at the 11th SFO International Cancer Conference and Bangladesh Cancer Congress, Dhaka, Bangladesh, November 19-20, 2016.
142. **Huq, M.S.,** Dosimetry of small static photon fields: Challenges and Solutions, International Conference on Medical Physics 2016 16th AOCMP & 14th SEACOMP, December 9-12, Bangkok, Thailand.

143. **Huq, M.S.,** Stereotactic body radiation therapy: technical challenges and clinical aspects- Motion management for SBRT, International Conference on Medical Physics 2016 16th AOCMP & 14th SEACOMP, December 9-12, Bangkok, Thailand.
144. **Huq, M.S.,** New approaches to quality management in radiation therapy: A brief overview of AAPM TG100, International Conference on Medical Physics 2016 16th AOCMP & 14th SEACOMP, December 9-12, Bangkok, Thailand.
145. **Huq, M.S.,** Keynote presentation: Emerging treatment paradigms and new challenges in radiation oncology; Future Health Summit, Dublin, Ireland May 24-25, 2017.
146. **Huq, M.S.,** Emerging treatment paradigms and new challenges in radiation oncology; 20th Annual Nagalingam Suntharalingam Lecture, Philadelphia, Pennsylvania, June 8, 2017.
147. **Huq, M.S.,** Implementation of the IAEA-AAPM Code of Practice for the dosimetry of small static fields used in external beam radiotherapy; International Conference on Advances in Radiation Oncology, Vienna, Austria, June 20-23, 2017.
148. **Huq, M.S.**, Towards a radical treatment of oligometastases: Imaging and treatment delivery from a medical physics perspective; International Conference on Advances in Radiation Oncology, Vienna, Austria, June 20-23, 2017.
149. **Huq, M.S.,** The role of international organizations and professional societies; International Conference on Advances in Radiation Oncology, Vienna, Austria, June 20-23, 2017.
150. **Huq, M.S.,** Improving quality and safety using the TG100 approach; International Conference on Advances in Radiation Oncology, Vienna, Austria, June 20-23, 2017.
151. **Huq, M.S.,** How to evaluate a treatment plan; International Conference on Advances in Radiation Oncology, Vienna, Austria, June 20-23, 2017.
152. **Huq, M.S.,** Best of ASCO and ASTRO 2016: Physics and patient safety; Conference organized by MEDISPROF, Cluj-Napoca, Romania, June 24-25, 2017.
153. **Huq, M.S.,** Emerging treatment paradigms and new challenges in radiation oncology, Keynote speaker, Conference organized by The Latin-American Symposia on Nuclear Physics and Applications (LASNPA) & Workshop on Nuclear Physics and Nuclear

Related Techniques (WONP-NURT) and III School on Medical Physics, Havana, Cuba, October 23-27, 2017.

154. **Huq, M.S.,** AAPM TG100: Application of risk analysis methods to radiation therapy quality management, Conference organized by The Latin-American Symposia on Nuclear Physics and Applications (LASNPA) & Workshop on Nuclear Physics and Nuclear Related Techniques (WONP-NURT) and III School on Medical Physics, Havana, Cuba, October 23-27, 2017.
155. **Huq, M.S.,** Oligometastases: Imaging, treatment planning and delivery, Conference organized by The Latin-American Symposia on Nuclear Physics and Applications (LASNPA) & Workshop on Nuclear Physics and Nuclear Related Techniques (WONP-NURT) and III School on Medical Physics, Havana, Cuba, October 23-27, 2017.
156. **Huq, M.S.,** Emerging treatment paradigms and new challenges in radiation oncology, Keynote speaker, Engineering & Physical Sciences in Medicine Conference 2017, Hobart, Australia, October 29 – Nov 1, 2017.
157. **Huq, M.S.,** New IAEA-AAPM international Code of Practice for the dosimetry of static small photon fields, Engineering & Physical Sciences in Medicine Conference 2017, Hobart, Australia, October 29 – Nov 1, 2017.
158. **Huq, M.S.,** A 8-hour workshop on TG-100: Failure Modes and Effects Analysis and risk-based approaches to quality management: Engineering & Physical Sciences in Medicine Conference 2017, Hobart, Australia, October 29 – Nov 1, 2017.
159. **Huq, M.S.,** Quality and safety in oncology, National oncology symposium, Cork, Ireland, February 22, 2018.
160. **Huq, M.S.,** Best of ASCO and ASTRO 2017: Physics and patient safety; Conference organized by MEDISPROF, Cluj-Napoca, Romania, June 22-23, 2018.
161. **Huq, M.S.,** Small fields: TRS483, AAPM-ISEP course: Challenges in modern radiotherapy physics, Ljubljana, Slovenia, July 3-7, 2018.
162. **Huq, M.S.,** Clinical implementation of SRS/SBRT (TG101), AAPM-ISEP course: Challenges in modern radiotherapy physics, Ljubljana, Slovenia, July 3-7, 2018.

163. **Huq, M.S.,** A three-and-a-half-hour workshop on TG100, AAPM-ISEP course: Challenges in modern radiotherapy physics, Ljubljana, Slovenia, July 3-7, 2018.
164. **Huq, M.S.,** Practical implementation of IAEA-AAPM jointly published Code of Practice, Technical Report Series 483: Dosimetry of Small Static Fields Used in External Beam Radiotherapy, Symposium organized by Standard Imaging at the AAPM Annual Meeting held in Nashville, TN, July 29- August 2, 2018.
165. **Huq, M.S.,** Overview of TG100, Regional Training Course on Prevention of Accidents and Incidents in Radiotherapy, Argonne National Lab, USA, August 6 - 10, 2018.
166. **Huq, M.S.,** TG100 Process Map, Regional Training Course on Prevention of Accidents and Incidents in Radiotherapy, Argonne National Lab, USA, August 6 - 10, 2018.
167. **Huq, M.S.,** TG100: Failure Modes and Effects Analysis, Regional Training Course on Prevention of Accidents and Incidents in Radiotherapy, Argonne National Lab, USA, August 6 - 10, 2018.
168. **Huq, M.S.,** Risk based assessment of modern radiotherapy practice: Recommendations of AAPM TG100 protocol, Medical Physics Unit, McGill University, Cedars Cancer Center, MUHC, Montreal, Canada, October 9, 2018.
169. **Huq, M.S.,** An eight-hour workshop on TG100, AAPM Missouri River Valley chapter, Nebraska, November 2, 2018.
170. **Huq, M.S.,** Innovations in radiation treatment, American Society of Radiologic Technologists (ASRT) continuing program, UPMC Hillman Cancer Center, Nov 21, 2018.
171. **Huq, M.S.,** Technological and dosimetric innovations in radiotherapy, 6th international annual symposium UPMC, The role stereotactic radiotherapy in multidisciplinary oncological outpatient clinics, Rome, Italy, December 14-15, 2018.
172. **Huq, M.S.,** IAEA-AAPM Code of Practice for Small Field Dosimetry: TRS483; Midwinter Symposium, Southern California Chapter of the AAPM, Sheraton Universal Hotel, Los Angeles, CA, January 25, 2019.
173. **Huq, M.S., Keynote Address**, Technologies of the future: What next? Spring Meeting, Florida Chapter of the AAPM (FLAAPM), Daytona Beach, FL, February 28, 2019.

174. **Huq, M.S.,** IAEA-AAPM Code of Practice for the dosimetry of static small photon fields; Spring Educational Symposium, Ohio River Valley Chapter of the AAPM, Louisville, KY, March 15-16, 2019.
175. **Huq, M.S.,** Technological innovations in radiation therapy: 2019 and beyond; Spring Meeting of the Penn-Ohio Chapter of the AAPM, Boardman, Ohio, May 3, 2019.
176. **Huq, M.S.,** Emerging technologies in radiation oncology; 2019 Spring Meeting and Young Investigators Symposium, Great Lakes Chapter of the AAPM, Southfield, Michigan, May 13, 2019.
177. **Huq, M.S.**, Detector specific output correction factors: How to use them in clinical practice, 38th annual meeting of European SocieTy for Radiotherapy & Oncology, 26-30 April 2019, Milan, Italy.
178. **Huq, M.S.**, Implementation of the International Code of Practice on Dosimetry of Small Static Fields used in External Beam Radiotherapy (TRS-483), International Symposium on Standards, Applications and Quality Assurance in Medical Radiation Dosimetry (IDOS2019), 18-21 June 2019, Vienna, Austria.
179. **Huq, M.**S., Best of ASCO and ASTRO 2018: Physics and patient safety; Conference organized by MEDISPROF, Cluj-Napoca, Romania, June 21-22, 2019.
180. **Huq, M.**S., Determination of absorbed dose to water in MV photon beams (TRS-398), Theoretical and practical workshop on Dosimetry of small static fields in External beam radiotherapy- IAEA TRS483, 24th International Conference on Medical Physics, 8th Latin American Congress of Medical Physics, 2nd Chilean Congress of Medical Physics, Santiago-Chile, September 8-11, 2019.
181. **Huq, M.**S., Introduction to the new IAEA/AAPM Code of Practice for dosimetry of static small photon fields, Theoretical and practical workshop on Dosimetry of small static fields in External beam radiotherapy-IAEA TRS483, 24th International Conference on Medical Physics, 8th Latin American Congress of Medical Physics, 2nd Chilean Congress of Medical Physics, Santiago-Chile, September 8-11, 2019.
182. **Huq, M.**S., Field output factors, output correction factors, profiles, penumbra and depth functions, Theoretical and practical workshop on Dosimetry of small static fields

in External beam radiotherapy- IAEA TRS483, 24th International Conference on Medical Physics, 8th Latin American Congress of Medical Physics, 2nd Chilean Congress of Medical Physics, Santiago-Chile, September 8-11, 2019.

183. **Huq, M.**S., 5 lectures given at the Quality Safety and TG100 workshop, 24th International Conference on Medical Physics, 8th Latin American Congress of Medical Physics, 2nd Chilean Congress of Medical Physics, Santiago-Chile, September 8-11, 2019.
184. **Huq, M.**S., Radiation Oncology: New paradigms and future challenges, Plenary lecture at the 24th International Conference on Medical Physics, 8th Latin American Congress of Medical Physics, 2nd Chilean Congress of Medical Physics, Santiago-Chile, September 8-11, 2019.
185. **Huq, M.**S., The new IAEA/AAPM Code of Practice TRS 483, 24th International Conference on Medical Physics, 8th Latin American Congress of Medical Physics, 2nd Chilean Congress of Medical Physics, Santiago-Chile, September 8-11, 2019.
186. **Huq, M.**S., Quality and Safety in oncology, 24th International Conference on Medical Physics, 8th Latin American Congress of Medical Physics, 2nd Chilean Congress of Medical Physics, Santiago-Chile, September 8-11, 2019.
187. **Huq, M.**S., New innovations in cancer treatment? Plenary talk, LXII National Congress of Physics, Villahermosa, Mexico, Oct 6-11, 2019.
188. **Huq, M.**S., Faculty at the TG100 Train the Trainer Workshop, AAPM HQ, Alexandria, VA, Oct 23-24, 2019.
189. **Huq, M.**S., What are the impacts of new technologies on patients, families and health care system? XIX course of radiotherapy and QC, Sao Paulo, Brazil, Nov 20-22, 2019.
190. **Huq, M.**S., Will SRS SBRT be the standard of care? XIX course of radiotherapy and QC, Sao Paulo, Brazil, Nov 20-22, 2019.
191. **Huq, M.**S., Will new approaches to QM enhance safety and quality of care? XIX course of radiotherapy and QC, Sao Paulo, Brazil, Nov 20-22, 2019.
192. **Huq, M.**S., What are the impacts of new technologies on patients, families and health care system, UPMC 7th annual radiotherapy symposium, Rome, Italy, Dec 13-14, 2019.

193. **Huq, M.S.,** Physics and challenges of small fields: MV photon beams; 6th International Conference on Radiation Medicine (ICRM2020): Clinical Applications and Innovative Approaches; King Faisal Specialist Hospital & Research Center, and Alfaisal University, Riyadh, Kingdom of Saudi Arabia, February 6 – 13, 2020 (Talk given virtually).

194. **Huq, M.S.,** Introduction to TRS483: IAEA/AAPM Code of Practice for Dosimetry of Static Small Photon Fields; 6th International Conference on Radiation Medicine (ICRM2020): Clinical Applications and Innovative Approaches; King Faisal Specialist Hospital & Research Center, and Alfaisal University, Riyadh, Kingdom of Saudi Arabia, February 6 – 13, 2020 (Talk given virtually).

195. **Huq, M.S.,** Reference dosimetry measurements (general, influence quantities, noise, leakage); 6th International Conference on Radiation Medicine (ICRM2020): Clinical Applications and Innovative Approaches; King Faisal Specialist Hospital & Research Center, and Alfaisal University, Riyadh, Kingdom of Saudi Arabia, February 6 – 13, 2020 (Talk given virtually).

196. **Huq, M.S.,** Field output factor. Definition, measurements and correction factors; 6th International Conference on Radiation Medicine (ICRM2020): Clinical Applications and Innovative Approaches; King Faisal Specialist Hospital & Research Center, and Alfaisal University, Riyadh, Kingdom of Saudi Arabia, February 6 – 13, 2020 (Talk given virtually).

197. **Huq, M.S.,** Reference dosimetry in high-energy electron beams following the recommendations of IAEA TRS398 CoP; 6th International Conference on Radiation Medicine (ICRM2020): Clinical Applications and Innovative Approaches; King Faisal Specialist Hospital & Research Center, and Alfaisal University, Riyadh, Kingdom of Saudi Arabia, February 6 – 13, 2020 (Talk given virtually).

198. **Huq, M.S.,** AAPM initiatives and emergent RT technologies; 2020 Sun Nuclear QA & Dosimetry Symposium, Orlando, Florida, Feb 21-22, 2020.

199. **Huq, M.S.,** Innovations in cancer treatment and future technologies; The 2020 Southwest Chapter of the AAPM Annual Meeting (SWAAPM), Grapevine, Texas, Feb 27-29, 2020.

200. **Huq, M.S.,** An overview of the IAEA-AAPM Code of Practice for Small Field Dosimetry: TRS483; RAMPS Chapter Meeting, New York, NY, March 16, 2020 (virtual meeting).
201. **Huq, M.**S., Impact of modern technologies on patients, families and health system, Best of ASCO, ASCO 20 Virtual, Cluj-Napoca, Romania, June 26-27, 2020 (virtual Meeting).
202. **Huq, M.**S., New innovations in cancer treatment: 2020 and beyond, The National Congress of Oncology, Challenges of the year 2020 in Oncology, Romania, October 15-17, 2020 (Virtual Congress on Sanatatea.online).
203. **Huq, M.**S., The role of medical physicists in Quality, Patient safety and Error Reduction in the Era of Modern Radiotherapy, Free webinar by the IAEA Radiation Protection of the Patient Unit, November 5, 2020 (virtual event).
204. **Huq, M.**S., Modern accelerators used in radiotherapy, Online radiotherapy physics education programme for radiation oncology residents, Turkish Society for Radiation Oncology (TROD), February 9, 2021 (virtual event).
205. **Huq, M.**S., Advances in radiotherapy dose delivery systems, International Conference on Advances in Radiation Oncology, #ICARO3, Vienna, Austria 16-19 February 2021. (Virtual event).
206. **Huq, M.**S., Novel radiotherapy technologies, MEFOMP Medical Physics Conference, Kuwait, Saudi Arabia, 5-7 April 2021. (Virtual event).
207. **Huq, M.**S., Small field dosimetry: an overview of the recommendations of IAEA-AAPM, MEFOMP Medical Physics Conference, Kuwait, Saudi Arabia, 5-7 April 2021. (Virtual event).
208. **Huq, M.**S., AAPM's vision for global collaboration, The 9th Korea-Japan Joint Meeting on Medical Physics, September 9-10, 2021. South Korea (Virtual Meeting)
209. **Huq, M.**S., Safety and Quality in Radiation Therapy, The National Congress of Oncology, Bucharest, Romania, October 7-9, 2021, Boston, MA, (Hybrid meeting)
210. **Huq, M.**S., Radiation Knowledge, a quality improvement platform in radiation oncology, Global Health Catalyst Summit, November 12-13, 2021, Philadelphia, PA, (Virtual meeting)

211. **Huq, M.**S., Collaborate. Increase access to care. Reduce global health disparities, Global Health Catalyst Summit, November 12-13, 2021, Philadelphia, PA, (Virtual meeting)

212. **Huq, M.S.,** Global outreach activities of the international council, 19th South-East Asian Congress of Medical Physics (SEACOMP), 13th Annual Meeting of Thai Medical Physicist Society (TMPS), 14th Annual ASEAN College of Medical Physics (ACOMP), October 21-23, 2021, Phuket, Thailand, (Virtual meeting)

213. **Huq, M.S.,** New innovations in cancer treatment: 2020 and beyond, 19th South-East Asian Congress of Medical Physics (SEACOMP), 13th Annual Meeting of Thai Medical Physicist Society (TMPS), 14th Annual ASEAN College of Medical Physics (ACOMP), October 21-23, 2021, Phuket, Thailand, (Virtual meeting)

214. **Huq, M.S.,** Radiotherapy technology Procurement and maintenance TeleECHO, organized by C/Can, City Cancer Challenge, November 8, 2021, (Virtual meeting)

215. **Huq, M.S.,** Dosimetry of small static photon fields: Challenges and solutions, MP900 Seminar Series, University of Wisconsin, Wisconsin, Madison, April 18, 2022, (Virtual meeting)

216. **Huq, M.S.,** Dosimetry of small static photon fields: An overview of the joint recommendations of IAEA and AAPM, Memorial Sloan Kettering Medical Physics Grand Rounds, New York, NY, April 19, 2022, (Virtual meeting)

217. **Huq, M.S.,** Overview of standards reference dosimetry protocols for conventional fields, AAPM Summer School on Small Field Dosimetry, Stereotactic Radiosurgery and Stereotactic Body Radiation Therapy: The Future is Here, Southern Methodist University & UT Southwestern Medical Center, Dallas, TX, June 7-12, 2022

218. **Huq, M.S.,** Introduction to the IAEA/AAPM Code of Practice for Dosimetry of Static Small Photon Fields (TRS483), AAPM Summer School on Small Field Dosimetry, Stereotactic Radiosurgery and Stereotactic Body Radiation Therapy: The Future is Here, Southern Methodist University & UT Southwestern Medical Center, Dallas, TX, June 7-12, 2022

219. **Huq, M.S.,** Risk analysis and radiation therapy quality management, 42nd annual conference of Association of Medical Physicists of India, AMPICCON2021 conference, NIMHANS convention center, Bangalore, India, May 19-21st, 2022

220. **Huq, M.**S., Quality management solutions for Hypofractionated radiation therapy, Global Health Catalyst Summit, July 7-9, 2022, Washington DC.

221. **Huq, M.**S., Gave lectures on Failure Modes and Effects Analysis and Fault Tree Analysis in the four-week virtual "TG-100 Webinar series: Risk-informed Quality Management" offered by the AAPM from August 16 to September 6, 2022.

222. **Huq, M.**S., Current advanced technologies for the treatment of oncological pathologies, and concepts of new technologies on the horizon, 9th UPMC annual radiotherapy symposium - multidisciplinary collaborations in oncological pathologies: Central nervous system, thorax, abdomen, and pelvis, December 16-17, 2022, Rome, Italy.

223. **Huq, M.**S., Will today's accelerator technology soon become obsolete? MEFOMP 2023 Medical Physics Conference, May 19-22, 2023, Muscat, Oman.

224. **Huq, M.**S., The physics of small fields and TRS 483 Code of Practice, MEFOMP 2023 Medical Physics Conference, May 19-22, 2023, Muscat, Oman.

225. **Huq, M.**S., Practical implementation of TRS 483 Code of Practice in the clinic, MEFOMP 2023 Medical Physics Conference, May 19-22, 2023, Muscat, Oman.

226. **Huq, M.**S., Overview of Medical Physicist's role in global health, AAPM's 65th Annual Meeting, held in Houston, Texas; July 23-27, Houston, TX.

227. **Huq, M.**S., Keynote speaker; Reshaping tomorrow: The need for multi-country clinical trials in the SAARC countries with a focus on cancer, Bangladesh International Cancer Congress, September 14-15, 2023, Radisson Blu Water garden Hotel, Dhaka, Bangladesh.

228. **Huq, M.**S.; Overview of Lancet Paper Series, Global Health Catalyst Summit, September 16, 2023, Radisson Blu Water garden Hotel, Dhaka, Bangladesh.

229. **Huq, M.**S., Artificial Intelligence: Implications of AI in cancer diagnosis, treatment and outcome prediction, virtual presentation, 34th Congress of the Romanian

Radiotherapy Society and Medical Oncology Society/9th Congress of the Federation of Romanian Cancer Societies, November 2-5, 2023, Cluj- Napoka, Romania.

230. **Huq, M.**S., Keynote speaker, Artificial Intelligence: Implications of AI in cancer diagnosis, treatment and outcome prediction, Virtual presentation, Annual Scientific Conference and Workshop of the Nigerian Association of Medical Physicists, November 6-10, 2023, Calabar, Nigeria.
231. **Huq, M.**S., Keynote speaker, Reshaping tomorrow: The need for multi-country clinical trials in the Middle Eastern countries with a focus on cancer, Second Hybrid Middle East Society for Therapeutic Radiation Oncology Conference (MESTRO2023), November 9-11, 2023, Riyadh, Kingdom of Saudi Arabia.
232. **Huq, M.**S., The process of implementing an SBRT program, CONFER 2023 Conferintele Institutului Regional De Oncologie IASI, Hybrid program, November 22-25, 2023, Iash, Romania.
233. **Huq, M.**S., The necessary technological infrastructure for SAbR (equipment), CONFER 2023 Conferintele Institutului Regional De Oncologie IASI, Hybrid program, November 22-25, 2023, Iash, Romania.
234. **Huq, M.**S., State-of-the-art auto-planning systems, 10th UPMC annual radiotherapy symposium, December 15, 2023, Rome, Italy.
235. **Huq, M.**S., Keynote speaker, Partnership and advancing medical care in radiotherapy (vision 2030), International Conference for Collaboration in Pediatric Oncology, March 20, 2024, Bucharest, Romania.
236. **Huq, M.**S., Implementation of a stereotactic radiotherapy program: what is the process?, 2nd edition of Stereotactic Radiosurgery Introduction Course, March 22, 2024, Cluj, Romania.
237. **Huq, M.**S., Technological infrastructure for SAbR (equipment), 2nd edition of Stereotactic Radiosurgery Introduction Course, March 22, 2024, Cluj, Romania.
238. **Huq, M.**S., Unlocking the potential for collaboration: AAPM with KSMP, JSMP, and KAMPiNA, Keynote speaker at the AAPM KSMP-JSMP-KAMPiNA Joint Symposium held

at AAPM Annual Meeting at the Los Angeles Convention Center, Los Angeles, July 21, 2024, Los Angeles, Romania.

239. **Huq, M.**S., Strengthening radiotherapy in South Asia, invited presentation at the Highlight session – Hypofractionation and expanding access to radiotherapy in low-resource settings, World Cancer Congress, September 17-19, 2024, Geneva, Switzerland.

240. **Huq, M.**S., Cancer control in SAARC. Countries: Overview and action plan, invited presentation at the United Nations General Assembly Science Summit at the session titled "The Lancet Oncology: Cancer Care in South Asian Association for Regional Cooperation (SAARC) Countries, September 27, 2024, New York, USA.

PUBLICATIONS

PAPERS PUBLISHED IN PEER REVIEWED JOURNALS

1. **Huq, M.S.,** and Chowdhury, S.M.M.R.: Phonon Frequency Distribution of Amorphous Arsenic and Germania. Il Nuovo Cimento 43B: 57-64, 1978.

2. **Huq, M.S.,** Doverspike, L.D., Champion, R.L., and Esaulov, V.A.: Total Electron Detachment Cross-Sections for Collisions for H^- with He and F^- with Atomic and Molecular Targets. J. Phys. B: At. Mol. Phys. 15: 951-959, 1982.

3. **Huq, M.S.,** Fraedrich, D.S., Doverspike, L.D., Champion, R.L., and Esaulov, V.A.: Reactive Scattering and Electron Detachment in Collisions of Halogen Negative Ions with Isotopic Hydrogen Molecules. J. Chem. Phys. 76: 4952-4960, 1982.

4. **Huq, M.S.,** Doverspike, L.D., and Champion, R.L.: Total Cross Sections for Collisions of H^- and D^- with Various Molecules. Phys. Rev. A 27: 785-794, 1983.

5. **Huq, M.S.,** Doverspike, L.D., and Champion, R.L.: Electron Detachment for Collisions of H^- and D^- and with Hydrogen Molecules. Phys. Rev. A 27: 2831-2839, 1983.

6. White, N.R., Scott, D., **Huq, M.S.,** Doverspike, L.D., and Champion, R.L.: An Ion Beam Study of Refractive Scattering of Halide Ions by Methyl Halides. J. Chem. Phys. 80: 1108-1115, 1984.

7. **Huq, M.S.,** Scott, D., White, N.R., Champion, R.L., and Doverspike, L.D.: Measurements of Absolute Total Cross Sections for Charge Transfer and Electron Detachment of Halide Ions on Chlorine. J. Chem. Phys. 80: 3651-3655, 1984.

8. **Huq, M.S.,** Scott, D., Champion, R.L., and Doverspike, L.D.: Total Cross Sections for Collisions of 0^- and S^- with Hydrogen. J. Chem. Phys. 82: 3118-3122, 1985.

9. Scott, D., **Huq, M.S.,** Champion, R.L., and Doverspike, L.D.: Electron Detachment in Na^-, K^- Rare Gas Collisions. Phys. Rev. A 32: 144-150,1985.

10. Scott D., **Huq, M.S.,** Champion, R.L., and Doverspike, L.D.: Alkali-Negative-Ion-Molecule Collisions Phys. Rev. A33: 170-177, 1986.

11. Scott, D., Champion, R.L., Doverspike, L.D., and **Huq, M.S**.: Collisions of Cs^- with Atoms and molecules. J. Phys. B.: At Mol. Phys. 19: 3991-4006, 1986.

12. Champion, R.L., Doverspike, L.D., **Huq, M.S.,** Scott, D., and Wang, Yicheng: Reactive Scattering and Electron Detachment for Collisions of Halogen Negative Ions with HC1, DC1, and HBr. J. Chem. Phys. 88: 5475-5480, 1988.

13. Meyer, F.W., Griffin, D.C., Havener, C.C., **Huq, M.S.,** Phaneuf, R.A., Swenson, J.K., and Stolterfoht, N.: Population of High Angular Momentum States in Low Energy Double-Electron Capture Collisions of 0^{6+} with He. Phys. Rev. Lett. 60: 1821-1824,1988.

14. **Huq, M.S.,** Champion, R.L., and Doverspike, L.D.: Low Energy Collisions of 0^{2+} with Atoms and Molecules. Phys. Rev. A. 37: 2349-2353,1988.

15. Stolterfoht, N. Sommer, K. Griffin, D.C. Havener, C.C., **Huq, M.S.,** Phaneuf, R.A., Swensson, J.K., and Meyer, F.W.: Studies of Electron Correlation

16. Effects in Multicharged-Ion-Atom Collisions Involving Double Capture. Nucl. Instrum., and Methods in Phys. Res., B40/41: 28-32, 1989.

17. Havener, C.C., **Huq, M.S.,** Meyer, F.W., and Phaneuf, R.A.: Electron Capture by Multicharged Ions at eV Energies. J. Phys. (Paris) 50: C1-7 to C1-17, 1989.

18. Havener, C.C., **Huq, M.S.,** Krause, H.F., Schulz, P.A., and Phaneuf, R.A.: Merged Beam Measurements of Electron-Capture Cross-Sections for 0^{5+}+ H at eV Energies. Phys. Rev. A39: 1725-1740, 1989.

19. **Huq, M.S.,** Havener, C.C., and Phaneuf, R.A.: Low Energy Electron Capture Cross Sections for N^{5+}, N^{4+}, and N^{3+}+ H Using Merged Beams. Phys. Rev. 40: 1811-1816, 1989.

20. Gregory, D.C., **Huq, M.S.,** Meyer, F.W., Swenson, D.W., Sataka, M. And Chantrenne, S.: Electron-Impact Ionization Cross-Section Measurements for U^{10+}, U^{13+}, and U^{16+}. Phys. Rev. A41: 106-115, 1990.

21. Schulz, R.J., Venkataramanan, N., and **Huq, M.S.**: The Thermal Defect of A - 150 Plastic and Graphite for Low-Energy Protons. Phys. Med. Biol. 35:1563-1573, 1990.

22. **Huq, M.S.** and Nath, R.: A Comparison of IAEA 1987 and AAPM 1983 Protocols for Dosimetry Calibration of Radiotherapy Beams. Med. Phys. 18:26-35, 1991.

23. Schulz, R.J., **Huq, M.S.**, Venkataramanan, N., and Motakabbir, K.A.: A Comparison of Ionization- Chamber and Water-Calorimeter Dosimetry for High-Energy X-rays. Med. Phys. 18:1229-1233, 1991.

24. **Huq, M.S.,** Venkataramanan, N., and Meli, J.A.: The Effect on Dose of Kilovoltage X-rays Backscattered from Lead. Int. J. Radiat. Oncol. Biol. Phys. 24:171-175, 1992.

25. Schulz, R.J., Verhey, L.J., **Huq, M.S.,** and Venkataramanan, N.: Water Calorimeter Dosimetry for 160 MeV Protons. Phys. Med. Biol. 37:947-953, 1992.

26. **Huq, M.S.,** Agostinelli, A.G., and Nath, R.: Calibration of high energy photon and electron beams for radiotherapy using AAPM 1983 and IAEA 1987 dosimetry protocols. Med. Phys. 20:293-298, 1993.

27. **Huq, M.S**., Yu, Y., Chen, Z.P., and Suntharalingam, N.: Dosimetric Characteristics of a commercial Multileaf Collimator. Med. Phys. 22:241-247, 1995.

28. Palta, J.R., Biggs, P.J. Hazle, J.D., **Huq, M.S.,** Dahl, Q.A. Ochran, T.J., Soen, J., Dobelbower, R.R., and McCullough, E.C.: Intraoperative Electron Beam Radiation Therapy: Technique, Dosimetry, and Dose Specification. Report of Task Force 48 of the Radiation Therapy Committee, American Association of Physicists in Medicine. Int. J. Radiat. Oncol. Biol. Phys. 33:725-745, 1995.

29. Reiff, J.E., **Huq, M.S,** Mohiuddin, M., and Suntharalingam, N.: Dosimetric Properties of Megavoltage Photon Grid Therapy. Int. J. Radiat. Oncol. Biol. Phys. 33 (4):937-942, 1995.

30. Wang, Y., **Huq, M.S.,** Cheng, X., and Iliakis, G.: Regulation of DNA Replication in Irradiated cells by Trans-Acting Factors, Radiation Research. 142:169-175, 1995.

31. **Huq, M.S.,** Agostinelli, A.G., and Nath, R.: An Evaluation of the Recommendations of the TG25 Protocol for the determination of depth dose curves for electron beams using ionization chambers. Med. Phys. 22(8):1333-1337, 1995.

32. Mohiuddin, M., Stevens, J.H., Reiff, J.E., **Huq, M.S.,** Suntharalingam, N.: Spatially Fractionated (GRID) Radiation for Palliative Treatment of Advanced Cancer, Radiation Oncology Investigations. 4:41-47, 1996.

33. Ya, W., **Huq, M.S.,** and Iliakis, G. Evidence for activities inhibiting in trans-initiation of DNA replications in extracts prepared from irradiated cells. Radiation Research. 145: 408-418, 1996.

34. **Huq, M.S.,** Yu, Y., Mohiuddin, M., Ahmad, N.R., and Suntharalingam, N.: Differential Dose Delivery Using a Non-Docking Applicator for Intraoperative Radiation Therapy. Int. J. Radiat. Oncol. Biol. Phys. 37:429-433, 1997.

35. Ahmad, N.R., **Huq, M.S.,** and Corn, B.W., Respiration-Induced motion of the kidneys in whole abdominal radiotherapy: Implications for treatment planning and late toxicity. Radiotherapy and Oncology. 42: 87-90, 1997.

36. **Huq, M.S.,** Yue, N., and Suntharalingam, N.: Experimental determination of fluence correction factors at depths beyond d_{max} for a Farmer type cylindrical ionization chamber in clinical electron beams. Med. Phys. 24(10):1609-1613, 1997.

37. **Huq, M.S.,** Yue, N., Suntharalingam, N., and Curran, Jr. W.J., A Generalized film technique for the verification of vertex fields used in the treatment of brain tumors. Med. Phys. 25(9):1685-1691, 1998.

38. Almond, P.R., Biggs, P.R., Coursey, B.M., Hanson, W.F., **Huq, M.S.,** Nath, R., and Rogers, D.W. O.: AAPM's TG-51 protocol for clinical reference dosimetry of high-energy photon and electron beams. Med. Phys. 26 (9):1847-1870, 1999.

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BOOKS

1. Stereotactic radiosurgery and stereotactic body radiotherapy. Editors: Heron, D.E., MD, MBA, FACRO, FACR; **Huq, M. Saiful**, M.S., PhD, FAAPM, FInstP; and Herman, J.M., *ISBN*: 9780826168566; *eBook ISBN*: 9780826168573; Demos Medical Publishing (an imprint of Springer Publishing Co, LLC; Copyright © 2019 Springer Publishing Company.
2. Radiation Oncology Therapy. Editors: Sushil Beriwal, M. Saiful Huq, Michael Boyiadzis, McGraw Hill Publishing, to be published in 2022

BOOK CHAPTERS, MONOGRAPHS

1. Meyer, F.W., Griffin, D.C., Havener, C.C., **Huq, M.S.**, Phaneuf, R.A., Swenson, J.K., and Stolterfoht, N.: Correlation Effects on Double Electron Capture in Highly Charged, Low Energy Ion-Atoms Collisions. Invited papers in Electronic and Atomic

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