



Bangladesh Medical Physics Society

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## ICMPROI-2014

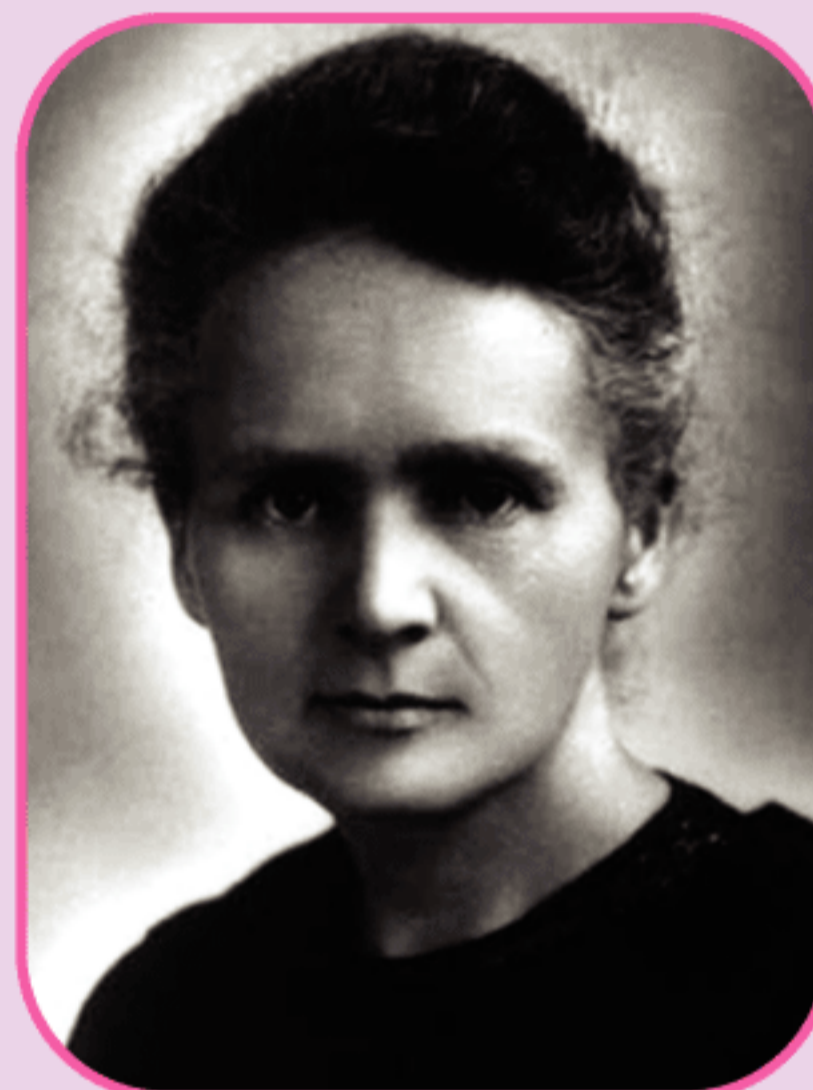
The 2<sup>nd</sup> International Conference on Medical Physics in Radiation Oncology and Imaging (ICMPROI-2014), combined with the 3<sup>rd</sup> Annual Conference of the Bangladesh Medical Physics Society (BMPS) will be held from 31<sup>st</sup> July to 2<sup>nd</sup> August in Dhaka, Bangladesh. It is jointly organized by the Bangladesh Medical Physics Society (BMPS), the Association of Medical Physicist in India (AMPI), Eastern Chapter and Nepalese Association of Medical Physicist (NAMP).



# Voice of BMPS

Volume 1 | Number 1 | Issue 1 | November 2013

## International Day of Medical Physics (IDMP) 7<sup>th</sup> November, 2013



Marie Sklodowska-Curie  
(7 November 1867 – 4 July 1934)

On the occasion of its 50th anniversary in 2013, the International Organisation for Medical Physics (IOMP) starts celebrating an annual International Day of Medical Physics. Our international community has selected Marie Sklodowska-Curie's birthday (7th Nov, 1867-1934) for this event. She was the most outstanding personality in science and a pioneer of medical physics. In 1903 she was awarded the Nobel Prize in Physics jointly with her husband Pierre Curie (1859 -1906) and Henri Becquerel (1852-1908) for the discovery of radioactivity; in 1911 she solely received the Nobel Prize in Chemistry. She died in 1934, the year of her daughter's and son in law's discovery of artificial radioactivity, Irene and Frederic Joliot-Curie, for which both of them received the Nobel Prize in Chemistry in 1935.

As everywhere else in the world the Bangladesh Medical Physics Society (BMPS) is going to celebrate the International Day to popularize medical physics. Since its registration in 2009 the BMPS has organised many seminars/workshops, national and international conferences, processions and negotiated with the government and other officials to create medical physicists positions in Bangladeshi hospitals.

Moreover we are glad to announce that the BMPS will publish its first news letter this very day. We intend to publish news letters every six months to give a voice to our medical physicists and biomedical engineers to share their knowledge, work and experience. We invite everybody at home and abroad to contribute to our news letter.

Thanks in advance to everyone who helps to make this day a great success and give their effort to publish the first issue of our news letter.

## Editorial

Dear Readers,

Welcome to Vol. 1 Number 1 of the “Electronic newsletter of Bangladesh Medical Physics Society (BMPS)”.

As 2014 is approaching, I start thinking about BMPS activities in the past and our plans for the future. Medical physics (MP) is a new era in Bangladesh. Although our society has gone through many difficulties filling the need of cancer patients, we have been fortunate to make people understand the need and importance of the MP in both private and public life with the essential activities.

It is with great pleasure that for the first time the BMPS will be introducing a newsletter on the occasion of the International Medical Physics Day on 7th November, 2013. Being the founder president, the BMPS has given me a real challenge for a better health care and treatment support in the field of medical physics and biomedical engineering especially concerning radiation oncology and imaging.

I would like to express my sincere appreciation to the task group K16 “Medical Physics in Developing Countries” of the German Medical Physics Society (DGMP) for their cooperation. Due to our combined efforts we could start MP here in Bangladesh. In this first issue, the history of medical physics in Bangladesh will be elaborately discussed. This newsletter is a recap of the MP’s important activities, present situation and status as well as its education since the BMPS ‘s inception in 2009.

I am looking forward to interacting with members of different MP organizations and to bringing their ideas and concerns on the issues which we care most both as professional medical physics and as patrons of health care. Our editorial office will look forward to receiving contributions of news, announcements, obituaries, and essays.

Please feel free to offer any suggestions for the improvement of our newsletter. If you miss anything there, do let us know, we can still include it on the website editions on various schedules.

We wish you a very happy and successful year full of happiness, health and positive thinking.

I believe that commitment, participation and great support of each member of this society will bring us achievement which is intended to promote the growth of medical physics professionals within and outside our country.

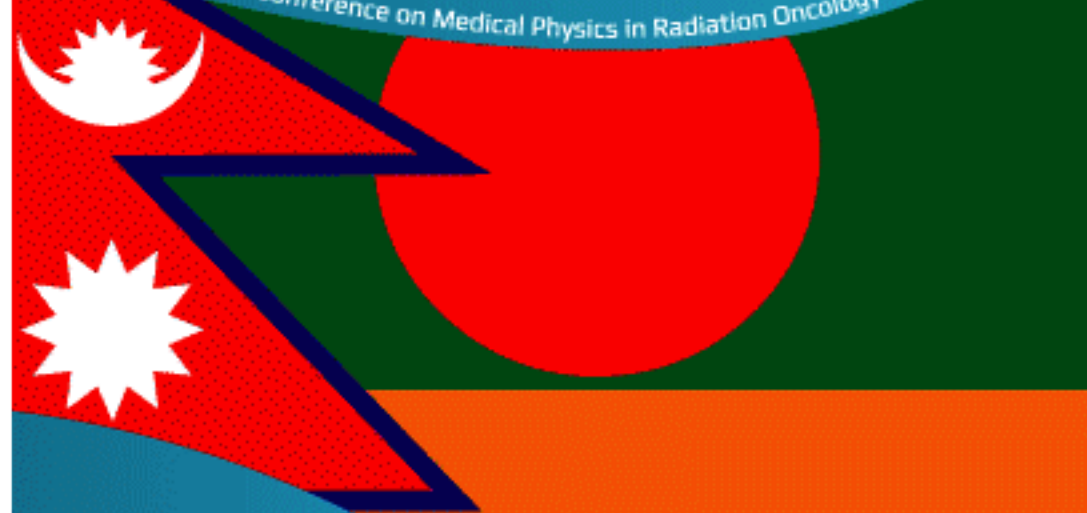
Last but not least, we have the pleasure to invite you to the 2nd International Conference on Medical Physics in Radiation Oncology and Imaging (ICMPROI-2014) which will be held on 31st July - 2nd August 2014 in Dhaka, Bangladesh.

*Dr. Hasin Anupama Azhari*



**ICMPROI-2014**

International Conference on Medical Physics in Radiation Oncology and Imaging



First Announcement

**2<sup>nd</sup> International Conference  
on  
Medical Physics in Radiation  
Oncology and Imaging**
**31 July - 02 August 2014**
**Dhaka, Bangladesh**

Jointly Organized by


 Bangladesh  
Medical Physics Society  
(BMPS)

 Association of  
Medical Physicist in India (AMPI),  
Eastern Chapter

 Nepalese  
Association of Medical Physicist  
(NAMP)
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Mr. P. P. Chaurasia (Nepal)

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 Ms. Taskin Dilshad  
 Mr. Mohammad Abdullah Al Maruf  
 Mr. K.M. Masud Rana
**Welcome Message**

Dear friends, esteemed colleagues,

On behalf of the organizing committee, we have the honour and pleasure to invite you to the 2<sup>nd</sup> International Conference on Medical Physics in Radiation Oncology and Imaging (ICMPROI-2014), combined with the 3<sup>rd</sup> Annual Conference of the Bangladesh Medical Physics Society (BMPS).

The next destination of the ICMPROI-2014 is in the beautiful city of Dhaka, the capital of Bangladesh. The conference will take place from 31<sup>st</sup> July to 2<sup>nd</sup> August 2014. During this event the participants from home and abroad come together where scientists from university, hospital and industry, as well as young researchers will have the chance to exchange knowledge and experience and to network with each other.

According to the tradition of the previous ICMPROI meeting, the scientific program of the ICMPROI-2014 will be composed of Plenary Sessions, Invited Lectures, Oral and Poster Presentations.

Scientific sessions continue to evolve and improve with the input of our attendees making the meeting great and even more spectacular. We thank you for your input in the past and we hope you and other new participants have the opportunity to experience the enhancements of Medical Physics at our upcoming conference.

Hoping that the ICMPROI-2014 will become a great scientific success, we are looking forward to welcoming you in Bangladesh.

 Chairperson  
Organizing Committee



 Secretary  
Organizing Committee
**Scope and Topics**

The theme of the conference has been chosen as "Medical Physics in Radiation Oncology and Imaging". The application of physical technology certainly aims to improve the quality of life but it also produces impacts on our environment. Ensuring a friendly environment is one of the largest challenges of the 21<sup>st</sup> century. People working in Medical Physics do not only have to invent new technologies but also to fight for better living conditions. The following topics will be covered in the different general and technical sessions:

- ▶ Radiation Oncology Physics
- ▶ Nuclear Medicine
- ▶ Health Physics
- ▶ Medical Physics & Biomedical Engineering Education
- ▶ Medical Imaging Physics
- ▶ Imaging & Radiation Oncology
- ▶ Biomedical Engineering

**Program Highlights**

- ▶ Plenary session
- ▶ Oral presentation
- ▶ Invited lecture
- ▶ Poster presentation

**Dates to Remember**

Submission of Abstract – 28 February 2014

Notification of Acceptance - 31 March 2014

Early Registration – 31 May 2014

Hotel Reservation – 30 June 2014

**How to Register**

To attend the ICMPROI-2014, all participants must register online or return manually filled registration forms which can be downloaded from the conference website. Registration confirmation is only acknowledged after the receipt of the registration fees. Each delegate must complete a separate registration form.

**Registration Fees**

Type of registration	Up to 31 <sup>st</sup> May	After 31 <sup>st</sup> May
Local Participants	BDT 1500	BDT 2000
Local Students*	BDT 500	BDT 800
SAARC Countries	USD 50	USD 75
Developing countries	USD 50	USD 75
Developed countries	USD 200	USD 250
Foreign Students*	USD 30	USD 50
Accompanying Person	BDT 1000 (Local), USD 50 (Foreign)	

Registration fees entitle participants to attend all the presentations, entrance to exhibition, daily coffee breaks and daily lunch.

\* For administrative purposes, a copy of own ID is required as a proof in order to avail the registration fee for a student.

**Guidelines for Abstract Submission**

Authors are requested to submit abstract online within 300 words, on or before 28 February 2014.

**Abstract title:** Abstract title should be in regular Times New Roman, 12pts font, title case, bold and centered, single line spacing.

**Authors' names:** Surname followed by initials, presenting author name should be bold & underlined, titles and degrees should not be included. Format: Times New Roman, 12pts font center alignment.

**Abstract Format:** Times New Roman, 10pt Font, single line spacing and justified. Abstract should not exceed a single A4 page. Abstract should not contain any table and/or figures. Page margin must be 3 cm for left and 2.5 cm for top, bottom and right margins.

**Accommodation & Transport**

Participants are requested to book their hotel reservation well in advance. Accommodation details will be announced in website soon. Transport for foreign participants from Hazrat Shahjalal International Airport to hotel will be arranged.

**Conference Secretariat**

All correspondence should be addressed to

**Dr. Hasin Anupama Azhari**

Organizing Secretary

Dept. of Medical Physics & Biomedical Engineering

Gono University, Savar, Dhaka-1344, Bangladesh

Phone: +880-2-7792224, 7192226 (Ext-162)

Mobile: +88-017-11841063, 017-30449610

E-mail: rupama\_5@hotmail.com, rupama\_6@yahoo.com



# Department of Medical Physics & Biomedical Engineering



**গণ বিশ্ববিদ্যালয়**  
**GONO BISHWABIDYALAY**  
P. O. Mirzanagar via Savar Cantonment  
Dhaka-1344, Bangladesh  
Phone : 7792224 (Registrar Office)  
01911893688, 01715067718 (Department)  
E-mail : gbidyalay@gmail.com  
www.gonouniversity-bd.com

## মেডিকেল ফিজিক্স এন্ড বায়োমেডিকেল ইঞ্জিনিয়ারিং বিভাগ

[বাংলাদেশে একমাত্র গণ বিশ্ববিদ্যালয়ে এ কোর্স পরিচালিত হচ্ছে।  
জার্মানী ও ভারতের বিশ্ববিদ্যালয়ের সাথে একাডেমিক চুক্তি  
বিদ্যমান]

গণ বিশ্ববিদ্যালয়ে ২০০০ সাল থেকে স্বাস্থ্য ও চিকিৎসা বিজ্ঞান অনুশূন্যের  
অন্তর্ভুক্ত মেডিকেল ফিজিক্স এন্ড বায়োমেডিকেল ইঞ্জিনিয়ারিং বিভাগে  
এম.এসসি কোর্স এবং ২০০৫ সাল থেকে বি.এসসি (অনার্স) কোর্স পরিচালিত  
হচ্ছে।

পরিচালিত কোর্সসমূহ	
বি.এসসি (অনার্স) মেডিকেল ফিজিক্স এন্ড বায়োমেডিকেল ইঞ্জিনিয়ারিং	৪ বৎসর (৮ সেমিস্টার)
এম.এসসি মেডিকেল ফিজিক্স এন্ড বায়োমেডিকেল ইঞ্জিনিয়ারিং	২ বৎসর (৪ সেমিস্টার)

### মেডিকেল ফিজিক্স ও বায়োমেডিকেল ইঞ্জিনিয়ারিং

মেডিকেল ফিজিক্স বা চিকিৎসা পদার্থবিদ্যা হলো চিকিৎসা শাস্ত্রে ব্যবহৃত  
ফলিত পদার্থবিদ্যা। চিকিৎসা পদার্থবিদ্যার কাজ হলো রোগ নির্ণয় ও নিরাময়ে  
পদার্থবিদ্যার ধারণাগত কৌশল ও পদ্ধতি ব্যবহার করে চিকিৎসা ক্ষেত্রে  
ভূমিকা রাখা।

বায়োমেডিকেল ইঞ্জিনিয়ারিং হচ্ছে প্রকৌশল ও বিজ্ঞানের উচ্চতর জ্ঞানের  
একটি আন্তর্জাতিক বিভাগ যা চিকিৎসা ও স্বাস্থ্যসেবা-সম্পর্কিত কারিগরি  
সমস্যাগুলোর সমাধান দেয়।

### কর্মক্ষেত্র - মেডিকেল ফিজিক্স এন্ড বায়োমেডিকেল ইঞ্জিনিয়ারিং

- সরকারী বা বেসরকারি হাসপাতাল অথবা ক্লিনিকে।
- ক্যান্সার চিকিৎসা প্রদানরত রেডিওথেরাপী বিভাগে।
- বিভিন্ন রোগ নির্ণয় কেন্দ্র বা ডায়াগনস্টিক ইমেজিং সেন্টারে।
- বাংলাদেশ এটমিক এনার্জি কমিশনে (BAEC)।
- চিকিৎসা সংশ্লিষ্ট যন্ত্রপাতি সরবরাহকারী বহুজাতিক কোম্পানীতে।
- শিক্ষা প্রতিষ্ঠানে, বিভিন্ন বিশ্ববিদ্যালয় ও গবেষণা প্রতিষ্ঠানে।
- এ বিষয়ে অনার্স/মাস্টার্স ডিগ্রী নিয়ে বাংলাদেশের বিসিএস সহ  
যে কোন সরকারি ও বেসরকারি প্রতিষ্ঠানে।
- বিদেশেও এদের ব্যাপক চাহিদা রয়েছে।
- ডাক্তার রোগ নিরাময় চিকিৎসায় লেজার থেরাপী ও চোখের  
চিকিৎসায় লেজার অপারেশনে।



ল্যাবরেটরিতে প্রশিক্ষণরত শিক্ষার্থীবৃন্দ



বিভাগ ও বাংলাদেশ পরমাণু শক্তি কমিশনের  
যৌথ উদ্যোগে আন্তর্জাতিক সেমিনার

### এই অনন্য ক্ষেত্রটিতে যা যা রয়েছে

বায়ো-ইন্সট্রুমেন্টেশন, রেডিওথেরাপী ট্রিটমেন্ট প্লানিং, রেডিয়েশন ডোজিমিট্রি,  
রেডিওথেরাপী ডিভাইস, বায়োমেটেরিয়াল, বায়োমেকানিক্স, নিউক্লিয়ার  
মেডিসিন, রেডিয়েশন প্রোটেকশন, মেডিকেল ইমেজিং, রেডিয়েশন  
অনকোলজি, ব্র্যাকিথেরাপী, লেজার মেডিসিন, পেসমেকার, অত্যাধুনিক যন্ত্র-  
চৌম্বক অনুরণন প্রতিবিম্ব প্রভৃতি।

### বিভাগে অধ্যয়নরত ছাত্রছাত্রীদের সুযোগ সুবিধা

- বিভাগে আধুনিক যন্ত্রপাতি সমৃদ্ধ পদার্থবিদ্যা পরীক্ষাগার, চিকিৎসা  
পদার্থবিদ্যা পরীক্ষাগার, বায়োমেডিকেল ইঞ্জিনিয়ারিং ও ইলেক্ট্রনিক্স  
পরীক্ষাগার রয়েছে।
- সরোজ গুপ্ত ক্যান্সার সেন্টার ও রিসার্চ ইনস্টিটিউট ভারত-এর সাথে ছাত্র-  
শিক্ষক বিনিময় চুক্তি রয়েছে।
- নর্থ বেঙ্গল অনকোলজী সেন্টার (শিলিগুড়ি, ইন্ডিয়া) এর সাথে ছাত্র-শিক্ষক  
বিনিময় চুক্তি রয়েছে।
- অনকোলজী সেন্টার ইউনাইটেড হাসপাতালের সাথে সহযোগিতামূলক চুক্তি  
বিদ্যমান।
- এসএসডিএল, বাংলাদেশ এটমিক এনার্জি কমিশনের সাথে বিভাগের চুক্তি  
প্রক্রিয়াধীন।
- হাইডেলবার্গ বিশ্ববিদ্যালয়ে ক্যান্সার গবেষণা সেন্টার (DKFZ), জার্মানী এবং  
গণ বিশ্ববিদ্যালয়ের মধ্যে একটি ছাত্র-শিক্ষক বিনিময় সম্পর্ক চুক্তি রয়েছে।
- ২০০২ইং মার্চে গণ বিশ্ববিদ্যালয়ের সাথে আনহাল্ট ইউনিভার্সিটি অফ  
এ্যাপ্লাইড সায়েন্স, জার্মানী-এর সাথে ছাত্র-শিক্ষক বিনিময় চুক্তি স্বাক্ষর  
হয়েছে।
- জার্মানীতে শিক্ষার্থীদের উচ্চতর প্রশিক্ষণের সুযোগ রয়েছে।
- ছাত্রছাত্রীদের থিসিস জার্মানীর খ্যাত চিকিৎসা পদার্থবিদ এবং বিভাগের  
শিক্ষকরা যৌথভাবে তত্ত্বাবধান করেন। এগুলো ইতিমধ্যে আন্তর্জাতিক  
মানসম্পন্ন বলে গণ্য হয়েছে।



জাতীয় ক্যান্সার হাসপাতালে শিক্ষার্থীদের ব্যবহারিক ক্লাস।

- বিষয় ভিত্তিক বই, মূল্যবান যন্ত্রপাতি সরাসরি জার্মানী থেকে সংগ্রহ করা  
হয়েছে।
- বছরে দুই বার হাইডেলবার্গ বিশ্ববিদ্যালয় থেকে বিশেষজ্ঞ চিকিৎসা  
পদার্থবিদগণ গণ বিশ্ববিদ্যালয়ে এসে ছাত্রছাত্রীদের পাঠদানে সহায়তা  
করেন।
- বিভাগের বিশেষ ব্যবহারিক ক্লাসগুলো দেশের বিভিন্ন সরকারি এবং  
বেসরকারি হাসপাতাল যেমন - ন্যাশনাল ইনস্টিটিউট অব ক্যান্সার রিসার্চ  
এন্ড হাসপাতাল, ঢাকা মেডিকেল কলেজ হাসপাতালে করানো হয়।



জার্মানীতে বিশেষজ্ঞ ফিজিস্টদের সাথে প্রশিক্ষণার্থী শিক্ষার্থীবৃন্দ।

### ভর্তির যোগ্যতা

বি.এসসি (অনার্স) কোর্স : মেডিকেল ফিজিক্স এন্ড বায়োমেডিকেল ইঞ্জিনিয়ারিং  
মাধ্যমিক ও উচ্চ মাধ্যমিক পরীক্ষায় পদার্থবিদ্যা ও গণিতসহ অন্তত ২য়  
বিভাগ/জিপিএ ২.৫। পলিটেকনিক ইনস্টিটিউট হতে ইলেক্ট্রিক্যাল,  
ইলেক্ট্রনিক্স, মেকানিক্যাল এন্ড ইলেকট্রোমেডিকেল ইঞ্জিনিয়ারিং-এ অন্তত  
২য় বিভাগ/সমমান-এ ডিপ্লোমা।

এম.এসসি কোর্স : মেডিকেল ফিজিক্স এন্ড বায়োমেডিকেল ইঞ্জিনিয়ারিং  
মেডিকেল ফিজিক্স এন্ড বায়োমেডিকেল ইঞ্জিনিয়ারিংয়ে বি.এসসি অনার্স,  
পদার্থ বিজ্ঞান, ফলিত পদার্থ বিজ্ঞান, গণিত, রসায়ন, প্রাণরসায়ন ও  
বায়োলজিতে ন্যূনতম ২য় শ্রেণীর বি.এসসি (অনার্স) অথবা এম.এসসি  
পাশ এবং কম্পিউটার ইঞ্জিনিয়ারিং, ইলেক্ট্রিক্যাল ও ইলেক্ট্রনিক্স/  
মেকানিক্যাল বি.এসসি ইঞ্জিনিয়ারিং-এ ২য় শ্রেণী/সমমান বা এমবিবিএস/  
দস্তচিকিৎসাবিদ্যায় গ্র্যাজুয়েশন।

বর্তমানে এখান থেকে পাশকরা মেডিকেল ফিজিস্টরা এবং  
বায়োমেডিকেল ইঞ্জিনিয়াররা ঢাকা মেডিকেল কলেজ হাসপাতাল, ন্যাশনাল  
ইনস্টিটিউট অব ক্যান্সার রিসার্চ এন্ড হাসপাতাল, স্কয়ার হাসপাতাল,  
ইউনাইটেড হাসপাতাল, শেখ মুজিব মেডিকেল বিশ্ববিদ্যালয়, খাজা ইউনুস  
আলি মেডিকেল কলেজ এন্ড হাসপাতালের রেডিওথেরাপী বিভাগে, বিভিন্ন  
মেডিকেল যন্ত্রপাতি সরবরাহকারী বহুজাতিক কোম্পানীতে এবং গণ  
বিশ্ববিদ্যালয়ে কর্মরত আছেন।

## Department of Medical Physics & Biomedical Engineering

[Only Department in Bangladesh: Collaboration with Germany & India]

In 2000 a full-fledged "Department of Medical Physics & Biomedical  
Engineering" was founded at Gono Bishwabidyalay, Savar, Dhaka,  
Bangladesh with M.Sc course of international standard. From 2005, B.Sc  
(Hons) course in Medical Physics and in Biomedical Engineering was  
launched.

Courses Offered	
B.Sc (Hons) in Medical Physics & Biomedical Engineering	4 years (8 Semesters)
M.Sc in Medical Physics & Biomedical Engineering	2 years (4 Semesters)

### Medical Physics and Biomedical Engineering

Medical Physics is the application of physics to medicine. It generally  
concerns physics as applied to medical imaging and radiotherapy, although  
a medical physicist may also work in many other areas of healthcare.

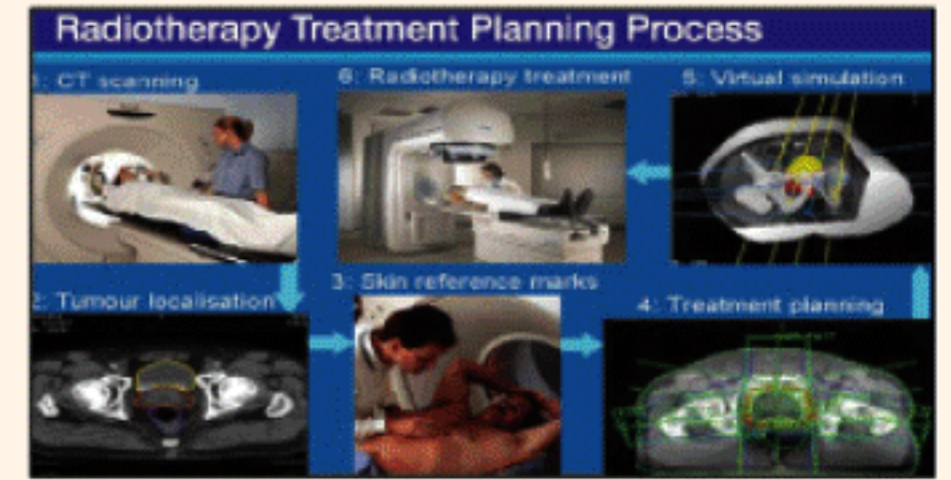
Biomedical engineering is an interdisciplinary field of advanced knowledge  
of engineering and science to solve medical and healthcare related  
problems.

### This unique field encompasses

Bio-instrumentation, Radiotherapy Treatment Planning, Radiation  
Dosimetry, Bio-materials, Radiotherapy Devices, Nuclear Medicine, Bio-  
Mechanics, Radiation Protection, Medical Imaging, Radiation Oncology  
Physics, Brachytherapy, Cellular and Tissue Engineering, Laser medicine,  
Intensity Modulated Radiation Therapy (IMRT), Sophisticated Imaging  
Device: Magnetic Resonance Imaging (MRI), Computed Tomography (CT),  
Positron Emission Tomography (PET).

### Job Scope : Medical Physics and Biomedical Engineering

- Radiotherapy Department in all public and private Hospitals
- Diagnostics Centers
- Bangladesh Atomic Energy Commission (BAEC)
- Medical Companies for Maintenance, Operation,  
Management and Development of Equipment
- University or Research Institute
- Also in foreign countries.



### Special Features

- Well equipped laboratories for Physics, Electronics, Medical Physics and  
Biomedical Engineering.
- Collaboration with the German Cancer Research Centre (DKFZ),  
Heidelberg University, Germany.
- Collaboration with Saroj Gupta Cancer Centre & Research Institute,  
Thakurpukur, Kolkata, India.
- Collaboration process is going on with the School of Bioscience &  
Engineering, Jadovpur University, Kolkata, India.
- Collaboration with Anhalt University of Applied Sciences, Germany
- Scope of higher training in Germany
- Thesis and project supervised by renowned Professors from German  
Universities.
- Updated books relevant to the subject and laboratory instruments are  
supplied from Germany
- Courses are taken by Guest Professors from Heidelberg University,  
University of Cologne, Germany.
- Facilities of practical training in the Government and non Government  
hospitals in Bangladesh (NICRH, DMCH, etc.)

### Eligibility for admission

#### B.Sc (Hons) in Medical Physics and Biomedical Engineering :

GPA 2.5 in S.S.C & H.S.C with Math & Physics or Diploma on  
Electrical/ Electronics/Mechanical/Electromedical Engineering from  
Polytechnic Institute, minimum 2nd class or equivalent.

#### M.Sc in Medical Physics and Biomedical Engineering :

B.Sc (Hons) in Medical Physics & Biomedical Engineering, B. Sc  
(Hons)/ M.Sc degree in Physics/Applied Physics/Biochemistry/Biology/  
Chemistry/Mathematics/MBBS/B.Sc in engineering, minimum 2nd  
class or equivalent.

Students passed from the department are currently working in  
Dhaka Medical College Hospital (DMCH), National Institute of  
Cancer Research and Hospital (NICRH), Square Hospital, United  
Hospital, Bangabandhu Sheikh Mujib University (BSMMU),  
Khawaja Yunus Ali Medical College & Hospital, Multinational  
company and also in Gono Bishwabidyalay.

## Speech given by Prof. Golam Abu Zakaria on the occasion of inaugural Ceremony of 2<sup>nd</sup> Annual Conference of BMPS (ACBMPS 15 – 16 March 2013)

It is a matter of honor and great pleasure for me to participate in the 2nd Annual Conference (ACBMPS 2013) organized by Bangladesh Medical Physics Society (BMPS) in cooperation with the National Institute of Cancer Research and Hospital (NICRH) and United Hospital (UHL).

Medical physics is the application of physical methods and concepts in diagnosis, therapy and prevention of human disease. The main domains of medical physics are radiation oncology and medical imaging. Worldwide we observe that the majority of medical physicists (76%) work in radiation oncology, 15% work in medical imaging, 3% in nuclear medicine, 4% in health physics, 1% in engineering and 1% in administration. Medical Physics and Biomedical Engineering in Bangladesh are getting more important every day as cancer treatment in Bangladesh is entering in a new era going from conventional therapy to conformal therapy. At present, the Bangladesh population is estimated about 150 million and the number of cancer patients equals 2000 out of 1 million inhabitants per year. According to the WHO, countries like Bangladesh with such a high number of cancer cases need two teletherapy machines like linear accelerators or Cobalt units per one million inhabitants. For 150 million Bangladeshi we need approx. 300 Linacs. Since each facility should have 2 Linacs, Bangladesh needs 150 radiotherapy centers.

In Radiation Oncology modality a team consists of a radiation oncologist, a medical physicist and a radiotherapy technician who work together. A minimum of 500 medical physicists, 800 radiation oncologists and the same number of technicians will be needed for these radiotherapy centers in future. The current status, however, is: In Bangladesh there are only 18 radiotherapy departments at which teletherapy is provided by 11 Co-60 units and 11 Linacs, with altogether 30 medical physicists and 100 radiation oncologists. That means there is a huge pile of work ahead of us.

At this point please allow me to tell you about the history of the working group "Medical Physics in developing countries" of the German Society of Medical Physics (DGMP) and our involvement in developing medical physics in Bangladesh.

Upon the invitation of the German Society for Medical Physics (DGMP) five physicists from different developing countries took part in the annual scientific meeting in Erlangen in October 1993. There, the DGMP founded a working group called "Medical Physics in the Developing Countries". The aim was to develop recommendations for effective short-term aid and self-help through cooperation. In June 1994, the first working group meeting was held in Heidelberg. All participants agreed upon the fact that the training of medical physicists in developing countries has to be considered as a priority task of the working group. At a further meeting in January 1995 in Tuebingen, the working group decided to start a model of cooperation in Medical Physics with Bangladesh, an emerging developing country which has neither medical physicists nor a society for Medical Physics. The group wanted to introduce the applied scientific discipline "Medical Physics" in a developing country like Bangladesh to ensure the start of an organizational structure for a successful implementation of appropriate education and training courses. However for a real help and success, an intensive exchange of information was needed between the partners on various political levels. Moreover, visits of MP experts to meet colleagues and to organize seminars and conferences in Bangladesh are of great importance, for even the DGMP has previously had only little experience in this matter.

After overcoming some obstacles, a project was developed very fast. We made our final decision in March 1996 in Gummersbach for the seminar in Bangladesh. In December '96 we had the first one-week seminar and workshop on Medical Physics at the Physics Department of the Bangladesh University of Engineering and Technology (BUET), Dhaka. Further seminars/ workshops followed in Bangladesh in 1997, 1998, 1999 and 2000 with 70 - 80 participants per year (physicists and radio-oncologists) from all over Bangladesh. The main aim of these seminars was to inform and to motivate physicists to become medical physicists. Four to five medical physicists from Germany used to attend those seminars every year. These were the beginning steps to make medical physics popular in Bangladesh. Many more people from Germany and Bangladesh helped to turn the seminars/workshops into a success story. In this connection, I mention the name of Prof. Gias Uddin Ahmad and his physicists team of BUET, Dr. Reza Hussain and his clinical team of Delta Hospital, my colleagues from Germany Dr. Karl-Heinz Hoever, Prof. Ulrich Quast and others. Upon our suggestion Bangladesh Medical Physics Association (BMPA) was founded in 1998.

Encouraged by these seminars, some participants asked for courses of Medical Physics in Bangladesh. Being a public run university, BUET was not able to introduce these courses for different reasons. But this inconvenience could not stop our efforts. In 2000 and for the first time in Bangladesh, Gono University (GB) introduced a M. Sc course in Medical Physics and Biomedical Engineering. Here, I still remember very well my first meeting with the authorities of Gono University, especially with Dr. Zafrullah Chowdhury in 1999 in order to successfully establish the department "Medical Physics and Biomedical Engineering" at Gono University. A few years later, in 2005, we got a B. Sc program on its way. So we continued recruiting experts for undergraduate and graduate levels in the field of Medical Physics and Biomedical Engineering. At that time some university policy-makers took bold and necessary steps that helped a lot to start a new era in Bangladesh. Already more than 20 students and 5 teachers of GB have studied and been trained in Germany according to the agreement of exchanging students-teachers with Heidelberg University and the German Cancer Research Centre.

Here I would like to thank especially my friend and companion, Prof. Guenther Hartmann and of course Prof. Wolfgang Schlegel, Prof. Josef Bille and Dr. Frank Hensley and many others for their strong support in Germany. In between many students passed their Bachelor, Master and Ph. D degrees under my supervision. Today they work in different universities and cancer hospitals in Bangladesh. Due to that, Bangladesh has a group of well trained specialists in medical physics which build a base of medical care for cancer patients.

Some of these trained specialists are now working at Gono University; others work in different hospitals in cooperation with Radiation Oncologists providing modern treatment for patients. Presently GB has nearly 150 students in MP and BME.

As there is no alternative to government hospitals for the treatment of masses of people, permanent posts for Medical Physicists are a must in governmental hospitals. Medical physicists have already permanent posts in private hospitals. Adding to that, Radiotherapy is not allowed without the assistance of a Medical Physicist in all developed and in most of the developing countries of the world.

Bangladesh Government has already bought modern Radiotherapy machinery for the National Institute of Cancer Research and Hospital (NICRH), Dhaka Medical College Hospital and Ziaur Rahman Medical College Hospital in Bogra. Initiatives have already developed to train Oncologists, Medical Physicists and Technicians for rendering proper services to these government hospitals. Right now, at least 30 persons from these 3 professionals must be trained to solve the problem. We have already provided training for 6 persons in two batches in Germany. To make this process official, a contract was signed between the National Institute of Cancer Research and Hospital (NICRH), the Bangladesh Cancer Society (BCS) and Darmstadt Hospital in Germany for imparting training and research in this sector. This is the first ever contract between a foreign Cancer Hospital and NICRH.

Being one of the significant pillars of cancer treatment - Medical Physics has already found its base in Bangladesh. Now it is the responsibility of the policy makers, especially of the government of Bangladesh, to make use of it for the well-being and proper treatment of cancer patients. In the meantime the present Bangladesh government is taking necessary steps for the recruitment of medical physicists in all public cancer hospitals.

I hope the Bangladesh Medical Physics Society seminar will start a new chapter in the treatment of cancer in general and especially for medical physicists and that it will give an excellent example for a cooperative movement of medical doctors and medical physicists/Biomedical Engineers as an important step into the right direction.

Thank you very much for the invitation with the intention to cooperate together for a further development of cancer treatment in the future. I will go on doing my best to help building more manpower, achieving higher education and training in Bangladesh and Germany.

I would like to end my speech with a quotation of Rabindranath Tagore which is known to most German students:  
"I slept and dreamed that life was joy-  
I awoke and saw that life is duty-  
And duty is joy"

*Prof. G. A. Zakaria*  
*Chairman of the "Medical Physics in the Developing Countries"*  
*of the DGMP*

BMPS conference  
Dhaka, 15 - 16 March 2013



## Medical Physics and Biomedical Engineering Education in Gono University

K C Paul<sup>1</sup>, M. Akhtaruzzamana<sup>2</sup>, Hasin Anupama Azhari<sup>1</sup>, G A Zakaria<sup>1,3</sup>

<sup>1</sup>Dept. of Medical Physics and Biomedical Engineering, Gono University, Dhaka, Bangladesh

<sup>2</sup>Radiation Oncology Department, Ahsania Mission Cancer and General Hospital, Dhaka, Bangladesh

<sup>3</sup>Dept. of Medical Radiation Physics, Gummersbach Hospital, Academic Teaching Hospital of University of Cologne, Gummersbach, Germany

**Abstract:** Medical Physicists put a major contribution in safe and effective radiation treatment of cancer patients. A high standard education is required for this purpose, which is difficult to achieve in a developing country due to lack of resources. The number of medical physicists in radiation oncology are not adequate to the current requirement and expect more radiotherapy centers with the increase of cancer patients in Bangladesh. The purpose of the study is to provide the information regarding the scope of Medical Physics and Biomedical Engineering (MPBME) education at Gono University. The paper represents an overview regarding the current status of education; collaboration and future programme of education at Gono University. The syllabus is based on IAEA, DGMP and AAPM documents considering the requirement of Bangladesh. A good number of students obtained Master of Science (M. Sc) in Medical Physics from this department. Academic collaborations exist with national and international institutes: National Institute of Cancer Research and Hospital (NICRH), Mohakhali, Dhaka Medical College Hospital (DMCH), Dhaka and the University of Heidelberg in cooperation with German Cancer Research Centre (DKFZ), Heidelberg, Germany. A standard education program has been conducted successfully at Gono University from 2001. Other Universities should come forward to achieve the requirement of medical physicists in the country.

*Keywords: Education, Medical Physics, Biomedical Engineering, Cooperation.*

### 1. Introduction:

**1.1 Background:** In 1994, the Bangladesh University of Engineering and Technology (BUET), Dhaka started a health physics course on the post graduate level at the department of physics. International activities in medical physics were started in Bangladesh from 1996 in cooperation with the task group 16 "Medical Physics in the Developing Countries" of the German Society of Medical Physics (DGMP) [1]. During the years 1996 to 2000 five seminars and workshops were conducted in BUET [2]. The seminars were largely attended by physicists working in the field of nuclear physics, solid state physics, radiation protection, by physicians from radio-oncology and nuclear medicine. The main issues of these seminars and workshops were to inform and to motivate physicists to become medical physicists. As the initiator of these seminars Dr. Golam Abu Zakaria, Professor of medical physics from Germany narrated the need of Medical Physics and Biomedical Engineering (MPBME) education in the country and proposed to establish the department of MPBME in BUET. The subject was new at that time and it was not possible to establish a department in the public university BUET for different reasons. In the year 2000, fortunately a private university Gono Bishwabidyalay (GB) came forward and opened the department of Medical Physics and Biomedical Engineering (MPBME) with an international standard of a two years master program (M. Sc) and began its academic activities from 2001 with five students in the first batch.

**1.2 Review of literature:** According to estimations made by the International Agency for Research on Cancer (IARC), there are currently (2002) approximately ten million new cancer cases per year worldwide, with slightly more than half of the cases occurring in developing countries. By the year 2015, this number is expected to increase to about 15 million cases, out of which two thirds will occur in developing countries [3]. Radiotherapy has a significant role in the treatment of cancer. About 60% of all cancer patients receive radiotherapy either as a part of primary treatment or in connection with control of recurrence or palliation [4]. The number of cancer patients to be estimated equals to about 2000 in 1 million of population per year. A need of one radiotherapy center with 2 machines is at least required for this number of cancer patients. Accordingly Bangladesh needs about 320 teletherapy machines (160 radiotherapy centers) as the inhabitants are about 160 millions [5, 6]. The existing number of radiotherapy centers is eighteen in the country, which is too few to meet the requirement. This is our first attempt to publish our experience about the education of Medical Physics and Biomedical Engineering (MPBME) at Gono University in detail.

**1.3 Recognition of University Grants Commission (UGC):** "The University Grants Commission (UGC) of Bangladesh is the statutory apex body in the field of higher education in Bangladesh, objectives of the UGC are to supervise, maintain, promote and coordinate university education and is also responsible for maintaining standard and quality in all the public and private universities in Bangladesh" [7]. Gono University has achieved the official recognition of the UGC for its master program as well as for its bachelor program in MPBME.

**1.4 Scope of MPBME Education in Bangladesh:** Gono University is the only institution with master and bachelor programs in MPBME in the country at present. In the year 2004 another university, South East University, also started a master course in medical physics. Three students obtained their M. Sc degree from that university but the program was stopped for unknown reasons. On 3rd November 2008 Dhaka University opened the Department of Biomedical Physics and Technology, it started its activity with a doctoral programme mostly in the field of biomedical engineering [8]. Recently Jahangirnagar University (JU) and National University started Ph. D program in medical physics from the department of physics.

## 2. Materials and Methods:

**2.1 Syllabus:** The M. Sc syllabus is mainly based on DGMP and AAPM documents considering the requirements of Bangladesh giving importance on IAEA recommended courses [9, 10]. The course structures are designed to prepare the students for clinical work, health care institutions, teaching and for research in MPBME. Table 1 shows the syllabus of a master course in Medical Physics and Biomedical Engineering at Gono University.

**Table-1:** Syllabus of M. Sc in MPBME a course of 120 credit hours.

1st Semester 30 Credits	* T	**L	2nd Semester 30 Credits	* T	**L	3rd Semester 30 Credits	* T	**L	4th Semester 30 Credits
Radiological Physics and Dosimetr	3	2	Conventional Planar Imaging	2	2	Magnetic Resonance Imaging	3	2	Thesis related course-5
Anatomy and Physiology	4	2	Digital X-Ray Imaging and CT	2	2	Nuclear Medicine	3	2	Thesis Presentation-5
Biostatistics	2	2	Ultrasound Imaging	2	2	Radiation Oncology	3	2	Thesis work-20
Mathematics and Computational Skills	4	2	Brachytherapy	4	3	Radiation Treatment Planning	3	3	
Professional Ethics-1	1	-	External Beam Radiotherapy	3	2	Techniques in Radiotherapy	3	2	
Radiation Biology	3	1	Radiation Therapy Devices	3	2	Radiation Protection	2	1	
Biomedical Electronics	2	1		-	-		-	-	
Semester viva voce	1		Semester viva voce	1		Semester viva voce	1		

*\*T indicates the credit hours for theory courses and \*\*L indicates the credit hours for Lab work.*

**2.2 Collaborations:** Collaboration program has been materialized between Gono University and the Manheim Medical Center, Heidelberg University, Germany, Anhalt University of Applied Sciences, Germany, Soroj Gupta Cancer Centre and Research Institute, Kolkata India, North Bengal Oncology Center, Siliguri, India. The department has also national collaborations with the National Institute of Cancer Research & Hospital (NICRH), Mohakhali, Dhaka; Dhaka Medical College Hospital (DMCH). The department is going on to establish more collaboration with some public and private institutions on national and international levels. Currently the students are doing their practical classes in NICRH, DMCH and Bangabandhu Sheikh Mujib Medical University (BSMMU), a post graduate medical university.

**2.3 Credit distribution:** For theory (T) one credit hour course is of minimum one hour lecture per week and for Lab work (L) one credit hour is equal to 3 hours per week.

**2.4 Eligibility criteria:** The basic prerequisite for admission into the master course is a graduation degree in one of the following subjects: MPBME, physics, related field in physical science or in bioscience, medicine or engineering disciplines. A minimum result requirement is 2.5 GPA out of 4 or second class/equivalent.

**2.5 Teaching and learning methods:** The core courses are adopted for designing a syllabus mainly followed by IAEA recommended book "Radiation Oncology Physics: A Hand Book for Teachers and Students" and other standard books on Medical Physics and Biomedical Engineering collected from international publications. Lectures are aimed to improve fundamental knowledge delivered in different courses. Up-to date keynote lecturers are provided in advanced courses. Students have to regularly present topics in groups by developing their soft skills.

**2.6 Teaching facilities:** The core subjects of the syllabus are taught within the department. As it is a multidisciplinary subject, teachers are recruited from different disciplines on full time and part time basis. The course associated subjects are conducted by the related departments in the university like anatomy, physiology, biochemistry, medical ethics, mathematics and computational education etc. The practical classes are carried out in the laboratories of the department as well as, in radio-diagnostic and radiotherapy departments of collaborated hospitals. Table 2 shows the present faculty members.



**Table -2:** List of faculty members.

Full Time Teachers	Part-time Teachers	Visiting Professor	Total Teachers 09	Medical Physicist 04	Physicist 03	Applied Physics & Electronics 02
06	02	01	03 Professor 01 Senior Assistant Professor 01 Senior Lecturer 04 Lecturer	01 Professor, Ph. D 01 Senior Assistant Professor, Ph. D 01 Senior Lecturer, Ph. D (enrolled) 01 Lecturer M. Phil (enrolled)	01 Professor Ph. D 02 Lecturer	01 Professor 01 Lecturer

**2.7 Examination procedure:** The M. Sc course comprises four semesters of six months each. The semester final examinations are conducted by an examination committee, which is formed by the course teachers, the external examiner and by the chairman of the department. The question papers are moderated before final selection. Moderation committee is formed with senior teachers, external examiners from different universities under the leadership of the chairman.

**2.8 Assessment method:** Attendance, tutorial and midterm are accounted for assessment. The answer scripts are examined by the course teacher and by the external examiner. The scripts are re-examined by the 3rd examiner if the obtained marks differ more than 20% between internal and external examiner.

**2.9 Language prerequisite:** The courses are conducted in all through English.

### 3. Results:

**3.1 Outcome of the education:** A good number of students have been awarded M. Sc degree from this department up to 2010. The existing number of students in the department is seventy five (7 master students and 68 bachelor students).

**3.2 Contribution to the cancer treatment:** The students who have obtained a M. Sc degree from the MPBME department are engaged in public hospitals (NICRH and DMCH), in private hospitals (Square Hospital, United Hospital, Khwaja Yunus Ali Medical College Hospital, Ahsania Mission Cancer & General Hospital), in multinational biomedical companies and last but not least in the department of MPBME, Gono University.

**3.3 Effect of collaboration:** Through the collaboration with Heidelberg University the master (M. Sc) and doctoral (Ph. D) students have received very important support for their thesis works under the financial assistance of DAAD (German Academic Exchange Program). The department has obtained some teaching equipment as donation from Germany like: treatment planning system, dosimeters, water phantoms, solid phantoms, calibrating film, applicator for brachytherapy, densitometer, books, journals, practical related equipment etc. Table-3 shows the results of the exchange program with Germany in the period between 2003 and 2006.

**Table-3:** The followings are the results of collaboration with Germany [1]

Student visited Heidelberg	13
Ph. D student visited	02
Teacher visited	04
German teachers visited Gono University	06

**3.4 Future plan:** The MPBME department updates continuously the educational method research program and arranges workshops/seminars on medical physics to improve the quality of students as well as medical physicists working in radiation oncology physics field in the country. The mother organization of this University Gonoshasthaya Kendra (GK) has planned to establish a cancer hospital with the facilities of teletherapy and brachytherapy facilities within the same campus of the university, which will increase the research facilities for the students of the department.

#### 4. Discussion:

Bangladesh badly needs medical physicists for cancer treatment in public and private organizations. NICRH is the only cancer research institute in the country with maximum cancer treatment facilities. Unfortunately they are yet to recruit medical physicists because there is no national recruitment policy to recruit medical physicists for created posts. However, in private radiotherapy centers medical physicists are being recruited very easily. As there is no government recruitment in this field, students are not showing their keen interest to come to this discipline. Two main problems are to be solved immediately for this field. One is that medical physicists need registration as they are working in the field of patient treatment and the other one is to make the recruitment policy for appointment in government organization. It is now required to find out the body to issue the registration of medical physicists. These two problems need to be solved for the expansion of medical physics and biomedical engineering education in Bangladesh. Therefore better service can be possible to provide for the cancer patients in the country. Now it is important to start an initiative for the establishment of training capabilities for radiation oncology medical physicists (ROMP). Good news are that for the promotion of medical physics activities in the country, a society has been formed named Bangladesh Medical Physics Society (BMPS) with medical physicists and biomedical engineers as regular members. The radiation oncologists are associated with society as promotional members and graduate students of MPBME as associated members. Last 11 to 13 March 2011, an International Conference on Medical Physics Radiation Oncology and Imaging was jointly organized by MPBME department, Gono University and BMPS in cooperation with the "Bangladesh Society of Radiation Oncologists" (BSRO), 200 participants including 36 foreign guests from 11 different countries (Bangladesh, India, Germany, UK, Japan, Nepal, Pakistan, Lebanon, Nigeria, China and Indonesia) were present. The impact of the conference was positive for the benefit of the small medical physicist's community in the country. To develop a Qualified Medical Physicist (QMP), an urgent crash program has already been started by BMPS for clinical training in radiotherapy with the collaboration of Germany. It should be mentioned that this type of education for medical physicists working in Radiation Oncology (ROMP) must be clearly distinguished from other educational efforts in medical physics in Bangladesh. This department is already a good resource of medical physics and biomedical engineering education in the country. This department can be a center of excellence of the country in the future.

#### 5. Conclusion:

MPBME education in Gono Bishwabidyalay (University) is now a success story. The future plan of the department is to develop a strong and advanced medical physics program for education, research and training in radiotherapy and imaging in the country. To make it possible, some more close and effective support, cooperation and collaboration with national and international research and teaching institutions and training programs in some member countries of AFOMP are needed. Other universities should come forward with MPBME education to meet up the adequate number of medical physicists and biomedical engineers in radiation oncology and imaging in the country.

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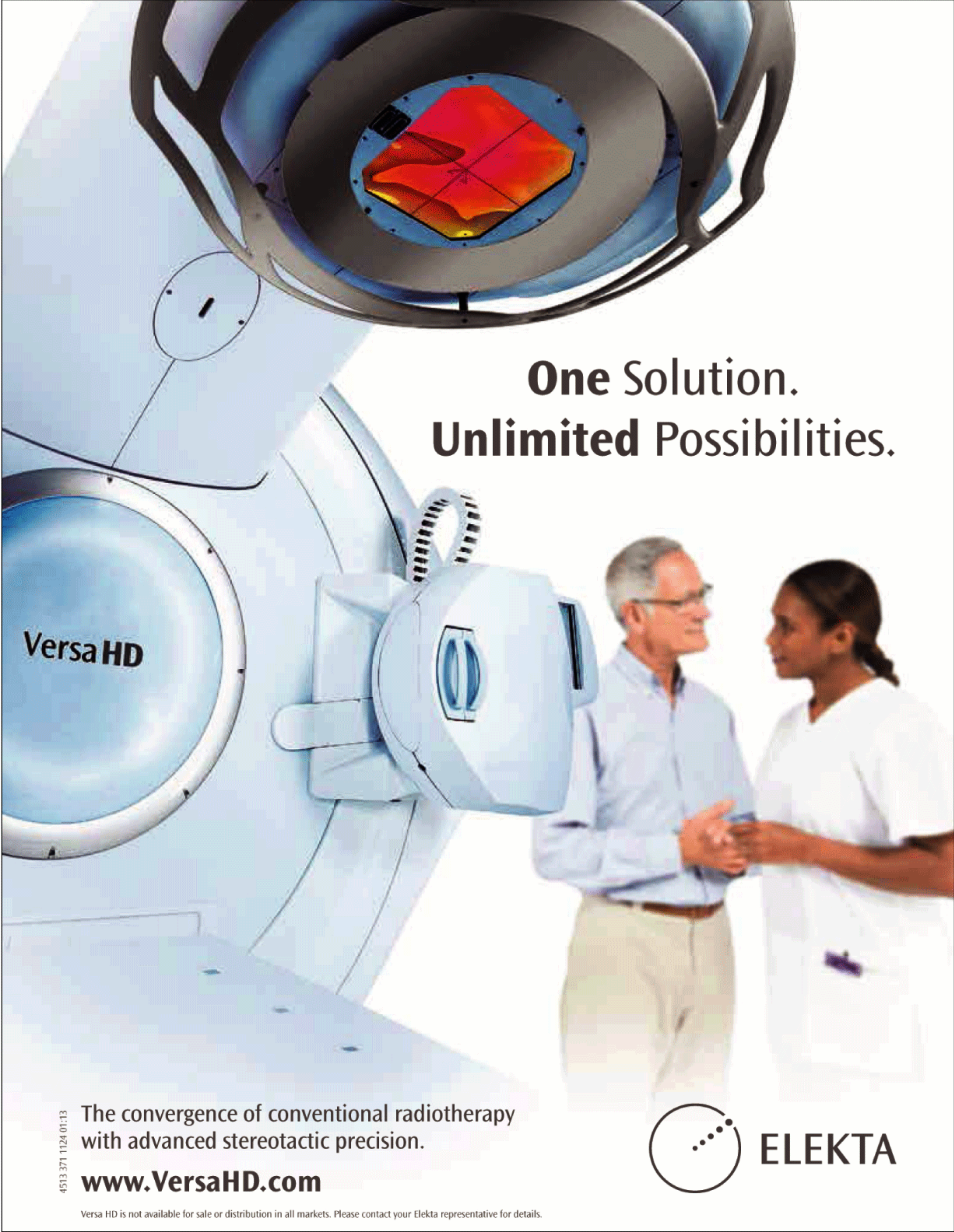
[This article was presented at the 11<sup>th</sup> Asia-Oceania Congress of Medical Physics, held from 29<sup>th</sup> September - 1<sup>st</sup> October 2011, Fukuoka, Japan.]

**Status of Radiotherapy Centers and Radiation Oncology Medical Physicists (ROMPs) in Bangladesh (2013)**

Name of Hospitals	Co-60	Linac	Brachytherapy	Simulator	No. of ROMP
National Institute of Cancer Research & Hospital, Dhaka	2	4	1	2	3
Bangabandhu Sheikh Mujib Medical University, Dhaka	-	-	-	-	3
Dhaka Medical College Hospital, Dhaka	2	1	-	-	1
Chittagong Medical College Hospital, Chittagong	1	-	-	-	-
Rajshahi Medical College Hospital, Rajshahi	1	-	-	-	-
M.A.G Osmany Medical College Hospital, Sylhet	1	-	-	-	-
Mymenaingh Medical College Hospital, Mymensingh	1	-	-	-	-
Combined Military Hospital, Dhaka	-	-	-	-	1
Sher -E Bangla Medical College Hospital, Barishal	1	-	-	-	-
Shaheed Ziaur Rahman Medical College, Bogra	-	1	-	1	2
Rangpur Medical College Hospital, Rangpur	1	-	-	-	-
Delta Medical College Hospital, Dhaka	2	1	1	1	8
Ahsania Mission Cancer & General Hospital, Dhaka	-	1	-	1	2
Khwaja Yunus Ali Medical College Hospital, Sirajgonj	-	2	1	2	2
Square Hospital Ltd, Dhaka	-	1	-	1	1
United Hospital Ltd, Dhaka	-	2	1	1	4
<b>Total</b>	<b>12</b>	<b>13</b>	<b>4</b>	<b>9</b>	<b>27</b>

**Status of Nuclear Medicine Centers & Nuclear Medicine Physicists (NMPs) in Bangladesh (2011)**

Name of Centers	Gamma Camera	Cyclotron/PET-CT	No. of NMP
Institute of Nuclear Medicine & Ultrasound Campus: Bangabandhu Sheikh Mujib Medical University, Dhaka	7	-	7
Center for Nuclear Medicine & Ultrasound Campus: Dhaka Medical College Hospital, Dhaka	2	-	2
Center for Nuclear Medicine & Ultrasound Campus: Sir Salimulla Medical College Hospital, Dhaka	1	-	1
Center for Nuclear Medicine & Ultrasound Campus: Chittagong Medical College Hospital, Chittagong	3	-	1
Center for Nuclear Medicine & Ultrasound Campus: Mymenaingh Medical College Hospital, Mymensingh	3	-	1
Center for Nuclear Medicine & Ultrasound Campus: M.A.G Osmany Medical College Hospital, Sylhet	1	-	1
Center for Nuclear Medicine & Ultrasound Campus: Rajshahi Medical College Hospital, Rajshahi	2	-	1
Center for Nuclear Medicine & Ultrasound Campus: Dinajpur Medical College Hospital, Dinajpur	2	-	1
Center for Nuclear Medicine & Ultrasound Campus: Rangpur Medical College Hospital, Rangpur	3	-	-
Center for Nuclear Medicine & Ultrasound Campus: Khulna Medical College Hospital, Khulna	2	-	1
Center for Nuclear Medicine & Ultrasound Campus: Sher -E Bangla Medical College Hospital, Barishal	2	-	1
Center for Nuclear Medicine & Ultrasound Campus: Faridpur Medical College Hospital, Faridpur	3	-	1
Center for Nuclear Medicine & Ultrasound Campus: Mohammad Ali Hospital, Bogra	1	-	-
Center for Nuclear Medicine & Ultrasound Campus: Shaheed Ziaur Rahman Medical College Hospital, Bogra	1	-	-
Center for Nuclear Medicine & Ultrasound Campus: Comilla Medical College Hospital, Comilla	2	-	1
Medinova Medical College Hospital, Dhaka	-	0/1	1
United Hospital Ltd, Dhaka	-	1/1	3
<b>Total</b>	<b>35</b>	<b>1/2</b>	<b>23</b>



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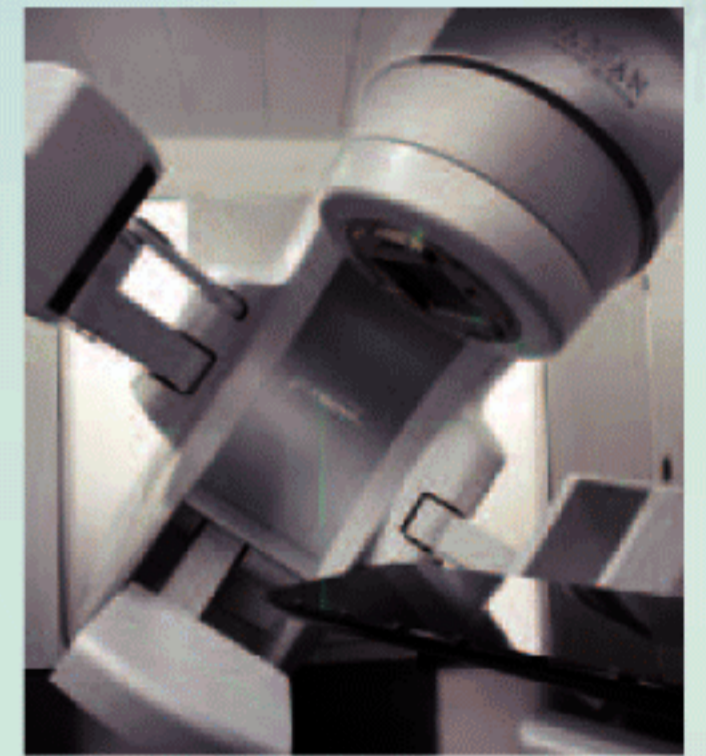


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## Conference/Seminar/Workshop/Symposium

### ACBMPS, March-2013

On March 15-16, 2013 "2<sup>nd</sup> Annual Conference of Bangladesh Medical Physics Society (ACBMPS-2013)" held in National Institute of Cancer Research & Hospital (NICRH), Mohakhali, Dhaka and United Hospital Ltd, Dhaka. On 15th March Prof. Dr. Khondhaker Md. Shefyetullah, Director General of Health, DGHS, Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh was invited as a Chief Guest, while Prof Dr. Santanu Chaudhuri, Director, Oncology Department, United Hospital Ltd., Dhaka chaired the seminar at United Hospital Ltd. Prof. Dr. Golam Abu Zakaria, Chairman, Working Group, Medical Physics in Developing Countries, German Society for Medical Physics (DGMP) were present in the ceremony as the Special Guest.



On 16<sup>th</sup> March 2013 Prof. Dr. Pran Gopal Datta, the Honorable Vice Chancellor, Bangabandhu Sheikh Mujib Medical University (BSMMU) was invited as as a Chief Guest. The session was presided by Prof. Dr. Mollah Obayedullah Baki, Director, National Institute of Cancer Research and Hospital. Teachers and students of the department Medical Physics & Biomedical Engineering, Gono Bishwabidyalay (University) attended and presented various scientific works and publications in this conference.



### Workshop on Quality Control of CT Simulator, March-2012

On March 27, 2012 a workshop on medical Physics titled "Quality Control of CT Simulator" was held at the Oncology & Radiotherapy Center of Square Hospital Limited organized by Bangladesh Medical Physics Society (BMPS), Department of Medical Physics and Biomedical Engineering (MPBME), Gono Bishwabidyalay and Square Hospital Limited. This workshop was directed by Katsumi Tsujioka, Associate Professor, School of Health Sciences, Fujita Health University, Japan. Students of advanced Bachelor and Masters Course, teachers of the MPBME, clinical medical physicists from different public and private hospitals participated in the workshop.



### International seminar at BAEC on Radiation Dosimetry, December-2011

A two days seminar entitled "International cum Workshop on Standards and Applications of Radiation Dosimetry, Cancer Diagnosis & Radiotherapy Treatment Planning" was held on 21-22 December 2011 at SSDL of Bangladesh Atomic Energy Commission (BAEC) organized by the BAEC and in co-operation with the Department of Medical Physics & Biomedical Engineering (MPBME) of Gono University. Mr. Md. Abdul Rob Howlader, Secretary, Ministry of Science and Technology was the Chief Guest of this seminar. Prof. Mesbahuddin Ahmad, Hon'ble Vice Chancellor of Gono University was invited as guest speaker and Prof. Golam Abu Zakaria, Visiting Professor of MPBME was invited as Guest of Honor in the seminar. Mr. A.S.M. Firoz, Chairman of BAEC presided over the inaugural ceremony as Chairperson. Dr Hasin Anupama Azhari, President, BMPS was the Co-chairperson of this seminar.



### Symposium on Oncology and Medical Physics, December-2011

A two days symposium titled "International Symposium on Recent Development in Oncology and Medical Physics" was held on 26-27 December 2011 at the National Institute of Cancer Research & Hospital (NICRH) organized by Bangladesh Cancer Society (BCS) in co-operation with Bangladesh Medical Physics Society (BMPS). Prof. Dr. A.F.M Ruhul Haque, MP, Hon'ble Minister, Ministry of Health and Family Welfare presided as Chief Guest. Prof. Dr. Mollah Obayedullah Baki, Director, NICRH and President, BCS chaired the symposium. The President of BMPS Dr. Hasin Anupama Azhari was the Co-convenor of this symposium.



### ICMPROI, March-2011

An international conference titled "International Conference on Medical Physics in Radiation Oncology and Imaging" was held from 11-13 March 2011 for the first time in Bangladesh on the role of medical physics in diagnosis and treatment of cancer disease in Gono Bishwabidyalay, Savar. The conference is jointly organized by the Department of Medical Physics and Biomedical Engineering (MPBME), Gono Bishwabidyalay (University), Dhaka, the Bangladesh Medical Physics Society (BMPS) and in cooperation with the Bangladesh Society of Radiation Oncologists (BSRO).



Medical Physics in Bangladesh, particularly in Radiation Oncology and Imaging, is still in a developing phase and further capacity building is certainly required. As a contribution to that, this conference is aiming to present and discuss current achievements and further activities on an international scale. About 200 expertises on cancer from 11 countries (Bangladesh, China, Japan, United Kingdom, Germany, India, Indonesia, Lebanon, Nepal, Nigeria and Pakistan) participated in this conference. It is a great pleasure for us that about 35 renowned foreign specialists attended and presented their research papers in the conference although medical physics is a very new subject in Bangladesh. A total of 94 research papers were presented at the conference. In the conference the importance, role, present position of medical physicist in Bangladesh and current researches in cancer were discussed elaborately. The organizers were the Vice Chancellor of Gono Bishwabidyalay and patron of conference Professor Mesbahuddin Ahmad, the pioneer of medical physics in Bangladesh and chairperson of the conference Professor Golam Abu Zakaria, President of BMPS and secretary of conference Dr. Hasin Anupama Azhari. This international conference was well timed during the gradually rising stage of medical physics in Bangladesh. This conference will bring the medical physics situation in Bangladesh one step ahead. Besides this it will help the government, politicians, and vendors to understand the necessity of medical Physics in national development and to take quick actions in this matter. At the closing day of the conference many foreign participants expressed to extend their helping hand in education, training and research for the development of this new subject.

### Workshop at DMCH, June-2010

For the first time in Bangladesh a workshop on Medical Physics titled "Advanced Training in Medical Physics: Dosimetry and treatment planning" was held on June 10, 2010 at the Radiotherapy Department at Dhaka Medical College Hospital (DMCH) organized by the Medical Physics and Biomedical Engineering Department, Gono Bishwabidyalay (GB). The workshop was conducted by Professor Dr. Golam Abu Zakaria, Chairman, Medical Physics Department, Cologne University, Germany and visiting Professor, Department of Medical Physics and Biomedical Engineering, GB.



Final year undergraduate and Master Students, teachers of the department, clinical medical physicists from different public and private hospitals participated in the workshop. Clinical Medical physicists were from Shaheed Ziaur Rahman Medical college and Hospital, Delta Medical College and hospital, Square Hospital, Dhaka Medical College and hospital, National Institute of Cancer Research and Hospital.

The purpose of the workshop was to emphasize the importance of dose measurement and treatment planning in cancer treatment. All the procedures of dosimetry and planning were thoroughly shown by Prof Zakaria followed by a discussion with the participants. For accurate dose measurement of the linear accelerator, the solution of the problems faced by the clinical medical physicist of different hospitals was also discussed here. Linear Accelerator and Treatment planning system were used for dosimetry and treatment planning. He pointed out the urgency of creating posts for medical physicists in Government hospitals. In recent years, the utility of dosimetry and treatment planning as a distinctive method of Radiation therapy for cancer disease has led to an explosive growth in the importance in Medical Physics research, added Prof. Dr Golam Abu Zakaria in the workshop. He also discussed all the problems regarding the training in a friendly atmosphere. In addition a quality control (QC) group was formed by physicists of hospitals and university, who will make a protocol for QC for the radiotherapy machine. All the participants attended all day long apprehending the discussion and made measurements with great attention. This type of workshop is very important for the development of medical physics in Bangladesh.

## NEWS/Events

e-Encyclopaedia of Medical Physics and Multilingual Dictionary - 2009

The banner for EMITEL features the title in blue text at the top. Below the title are several logos: the European Union flag, Leonardo da Vinci Education and Culture, King's College London (Founded 1829), King's College Hospital NHS Foundation Trust, Universitetssjukhuset i Lund, LUND UNIVERSITY, and the International Organization for Medical Physics (IOMP) logo.

EMITEL is the first on-line Encyclopaedia of Medical Physics and the first Multilingual Dictionary of Medical Physics terms. The project was drafted in the period 2001-2004. The project launch was at WC2009, Munich. EMITEL attracted 250+ contributors from 35 countries. All the contributors are included into an EMITEL Network. Its main goal is to support the global development of the profession and the real benefactors are our colleagues (specially the young ones). The total number of terms in English is expected to be approx. 3200. The Dictionary cross-translates to/from any two languages from its database. The length of the articles would depend on the term.

Bangladesh is one of the contributors out of 35 countries. Bengali Translation is done by a group of following members.



### Bengali Translation:

Prof. Golam Abu Zakaria (University of Cologne, Germany); Dr Hasin Anupama Azhari [Bengali Coordinator], Mr Md. Akhtaruzzaman, Mr Safayet Zaman, (all from Gono University, Dhaka)  
<http://www.emitel2.eu/emitwwsql/dictionary.aspx>



### Hands on Training Program on Radiation Oncology, June-2013

A Hands on Training Program on Radiation Oncology was organized by Director General of Health Services (DGHS), Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh from 22<sup>nd</sup> June to 26<sup>th</sup> June, 2013 in National Institute of Cancer Research and Hospital (NICRH). Invited persons were Prof G A Zakaria (Germany), Dr A K Rath (India), Mr V Poopathi (India), Dr Hasin Anupama Azhari (Bangladesh). They provide lectures, practical classes to the Radiation Oncologists, Medical Physicists, technicians.



### Annual General Meeting (AGM): BMPS

**2013:** The Annual General Meeting of Bangladesh Medical Physics Society (BMPS) was held on 29<sup>th</sup> March 2013 at the Department of Medical Physics & Biomedical Engineering of Gono Bishwabidyalay. Prof. Golam Abu Zakaria presided over the meeting as Chief Guest. The new Executive Committee was formed for 2013-2015.

**2012:** Held on 25<sup>th</sup> June 2012 at the Square Oncology & Radiotherapy center of Square Hospital Ltd. As per constitution of BMPS the Executive Committee will remain the same up to June 2013. Dr. Hasin Azhari Anupama presided over the meeting as Chief Guest.



**2011:** Held on 9<sup>th</sup> March 2011 at the Auditorium, PHA building of Gonoshasthaya Kendra. Prof. G. H. Hartmann presided over the meeting as Chief Guest. The new Executive Committee was formed for 2011-2013. The meeting decided to honor Prof. G. H. Hartmann as the Honorary Member of BMPS.

**2010:** Held on 10<sup>th</sup> June 2010 at the Radiotherapy Department of Dhaka Medical College & Hospital. Prof. Golam Abu Zakaria presided over the meeting as Chief Guest. In this AGM the official website (www.bmps-bd.org) of BMPS was launched. As per constitution of BMPS the Executive Committee will remain the same up to June 2011. The meeting decided to honor Prof. Golam Abu Zakaria as the Honorary Member of BMPS for his great contribution to Medical Physics in Bangladesh.

### Daily Star Round Table, January-2012

The most popular English newspaper, The Daily Star organized a round table discussion titled "Challenges of Cancer Treatment of Bangladesh: Ensuring better diagnosis and service to patients" at their centre on Sunday first January 2012 with BMPS. A number of noted Oncologist and Medical physicist participated in that discussion from various organizations, Hospitals, BAEC, University and Medical Companies. They emphasized that multiple specialists management for diagnosis and therapy in various forms of cancer are rising in Bangladesh.

The Chief Medical Physicist of the Gumersbach Teaching Hospital University of Cologne, Germany and visiting Prof. at Gono Bishwabidyalay, Prof. Golam Abu Zakaria, said that Bangladesh needed around 230 radiotherapy centers but had only 18. He added that 1,000 Oncologists, 600 Medical Physicists and 500 Technologists were needed to face the emerging challenges of cancer treatment.

Dr. ABMF Karim, Professor emeritus of radiation oncology at Virje University Hospital in Amsterdam, said a large number of cancer patients sought treatment abroad due to a lack of trust in local physicians and in the service system.



Dr. Hasin Anupama Azhari, President of Bangladesh Medical Physics Society (BMPS) and Chairman Department of Medical Physics and Biomedical Engineering at Gono Bishwabidyalay said that diagnosing cancer and carrying out therapy and surgery require a multidisciplinary effort of Oncologists, Medical Physicists and Technologists.

The valuable issues were also discussed by Prof. Pran Gopal Datta, Vice-Chancellor of BSMMU, Prof. Shahana Afroz, Nuclear Medicine specialist at Bangladesh Atomic Energy Commission, Prof. Siddique-e-Rabbani, Chairman of the Department of Biomedical Physics and Technology at Dhaka University.

The discussion suggested a number of recommendations, including bringing down the costs of diagnosis and therapy, creating awareness on food habits and lifestyle, diagnosis with molecular technology, adequate pathological facilities, easy procurement of diagnostic and therapy equipment, post-procurement service, public private partnership and designated cancer treatment centres. The other guests of the round table were Mr. Shisir Morol, Mr. Sujit Chowdhury, Mr. Mir Mahabub Ali, Mr. Mahfooz Hassan, Mr. Nizam, Mr. Md. Sirajul Islam, Mr. Kumaresh Chandra Paul, Dr. M Anwarul Islam, Mr. Faruk Hossain, Mr. Md. Akhtaruzzaman, Mr. Shak Salim, Mr. Harun or Roshid, Mr. Masud Rana, Mr. K.H. Anamul Haque.

**Co-operation with Germany MP Education, May-2012**

A co-operation agreement between Gono Bishwabidyalay (University) and Mannheim Medical Center of Heidelberg University, Germany was signed on May 22, 2012. Prof. Dr. Mesbahuddin Ahamad, Vice Chancellor, Gono Bishwabidyalay (University), Prof. Dr. Golam Abu Zakaria, Visiting Professor & Program co-coordinator at Gono Bishwabidyalay (University) and Professor Thomas Pfeiffer, Vice Chancellor, Heidelberg University and program coordinator Prof. Dr. Frederik Wenz, Manheim Medical Center, Germany signed the cooperation agreement. Amongst others Professor Dr. Guenther Hartman of Heidelberg University and Medical Physicist Dr. Volker Steil of the Medical Center of Manheim were present at the signing ceremony.



**Recruitment of Medical Physicists as Permanent Post**

Medical Physicist (MP) is a new manpower in Bangladesh (BD). For appointment of MP in Government (GO) hospitals, BD, position in each Radiotherapy Hospital as well as recruitment rules are mandatory of which process is going on. So that till now in Govt. hospitals there are no permanent positions of MPs though all private hospitals have their own MPs. For the first time the Dept. of Radiation Oncology, BSMMU (Bangabandhu Sheikh Mujib Medical University), a post graduate Medical University created three MP posts and appointed three MPs having M.Sc. in Medical Physics.

The Dept. of Radiation Oncology, CMH (Combined Military Hospital) also recruited a MP recently.

**Public Awareness**

Bangladesh Medical Physics Society (BMPS), at the very beginning of its establishment is aiming for mass awareness. Each year, BMPS organizes several national and International scientific seminars on Oncology and Medical Physics in collaboration with different cancer societies and hospitals. BMPS celebrates different cancer related days and other activities and takes part in round and open table discussions on radiotherapy treatment for public awareness. BMPS is working with the government to create medical physicist posts for a better treatment of the mass people of the country. BMPS tries to link private and public hospitals in order to keep both sectors on the latest development in medical physics. It is also broadcasts in print and electronic media that medical physicist play a vital role in radiotherapy and quality radiotherapy is not possible without their help.



**Achievements**

**Prof. Dr G A Zakaria**

Prof G A Zakaria has been an honorary member of BMPS since 2010. Recently, in 2013, Prof. Zakaria was honoured as "Fellow" of the Academy of Sciences in Bangladesh. In this regard the Bangladesh Academy of Science (BAS) arranged a special seminar on 12<sup>th</sup> September 2013 at the Institute of Nuclear Medicine Sciences, BSMMU. Prof. Dr Pran Gopal Datta, VC, BSMMU was the chief guest. The speaker Prof. Dr. Golam Abu Zakaria delivered an effective speech on "Physics Fighting against Cancer: New Development of Medical Physics in Radiation Oncology and Imaging". Prof. Mesbahuddin Ahmad, the president of BAS was the chairperson of the seminar.



In 2012, the Bangladesh Physical Society (BPS) awarded him "Fellow" of BPS for Contribution of Physics and Sciences, and in 2011, he had been awarded "Honorary Fellow" of the Bangladesh Cancer Society (BCS);



In 2009, Prof. Dr. Zakaria was honored for his commitment to the treatment of cancer in Bangladesh by two well-known cancer societies, the Oncology Club and the South Asian Federation of oncologists, being awarded the "Outstanding Personality of the Decade 2000-2010".



#### Member of AFOMP Scientific Committee

Dr Hasin Anupama Azhari, Founder President of BMPS (Bangladesh Medical Physics Society) chairman of the Dept of Medical Physics and Biomedical Engineering, Gono Bishwabidyalay (University) has been selected as one of the members of the Scientific committee of AFOMP (Asia-Oceania Federation of Organizations for Medical Physics) for three years. The other members are M. T. Bahreyni Toossi (Iran), Simon Downes (Australia), Rajesh A. Kinhi-kar (India), Rungdham Takam (Thailand), Ben Yu (Hong Kong) and Jeong-Woo Lee (Korea). The chairman of Scientific Committee, AFOMP is Dr. Arun Chougule, Dean, Faculty of Paramedical Science, Professor & Head, Department of Radiological Physics, S.M.S. Medical College & Hospitals, India.

#### Dr. Hasin Anupama Azhari

Dr. Hasin Anupama Azhari awarded Ph. D. in Medical Physics from the Department of Physics, National University (NU) Bangladesh under the supervision of Prof. Dr. Golam Abu Zakaria, Professor, Department of Medical Physics & Biomedical Engineering, Gono University and Professor, University of Cologne, Germany and Prof. Guenther Hartmann, German Cancer Research Center, Heidelberg University, Germany, Dr. S M Abu Raihan, NU in March 2011. Her Ph.D topic was "Physical, Biological and Clinical Aspects of Remote Afterloading Brachytherapy". Her host supervisor was Dr. Di Xiaoyun, Zhejiang Cancer Hospital, Hangzhou, China. Earlier she had received a Ph.D fellowship from OWSDW (Organization for Women in Science for the Developing World), ICTP, Italy. Her research stations were Zhejiang Cancer Hospital, China and German Cancer Research Center, Germany. In the meantime, her research works were published in the Journal of Medical Physics, India, European Journal of Medical Physics, Chinese Journal of medical Physics. Currently she is the chairman of the Dept of Medical Physics and Biomedical Engineering, Gono Bishwabidyalay (University) and founder President of the Bangladesh Medical Physics Society (BMPS).

#### Dr Mohammad Anwarul Islam

Mohammad Anwarul Islam, a medical physicist from the SQUARE Oncology and Radiotherapy Center of SQUARE Hospital Ltd., was awarded the Ph.D degree in 2012 from Jahangirnagar University. His field of research work was on medical physics. The title of his thesis is "Dosimetric study for iridium-192 and cobalt-60 HDR brachytherapy sources using an EGSncr Monte Carlo transport code". Prof. Dr. Mir Md. Akramuzzaman from physics department of the Jahangirnagar University was his supervisor and Prof. Dr. Golam Abu Zakaria from Gummersbach hospital of the Cologne University, Germany and the visiting professor of Gono University was his joint-supervisor. A part of his research work had been done in the German Cancer Research Center (DKFZ), Germany under a collaboration program between the Heidelberg University and Gono University, Savar, Dhaka. In the meantime, the result of his research work was published in the Journal of Medical Physics, India and PubMed. Dr. M. Anwarul Islam was the Vice-President of the Bangladesh Medical Physics Society (BMPS).

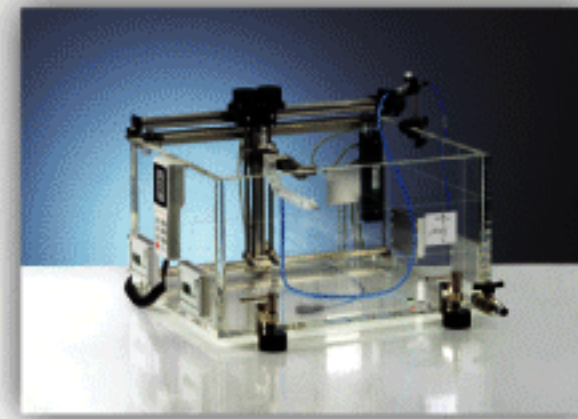


### Executive Committee 2013-2015

SN	Name & Address	Designation	Placement
1	Kumaresh Chandra Paul	President (Acting)	Dept. of Medical Physics & Biomedical Engineering, Gono University, Dhaka-1344
2	Dr. Hasin Anupama Azhari	Vice-President	Dept. of Medical Physics & Biomedical Engineering, Gono University, Dhaka-1344
3	Kumaresh Chandra Paul	Vice-President	Dept. of Medical Physics & Biomedical Engineering, Gono University, Dhaka-1344
4	Md. Akhtaruzzaman	Secretary	Medical Physicist Ahsania Mission Cancer and General Hospital, Uttara, Dhaka-1230
5	Md. Harun Or Rashid	Joint-Secretary	Medical Physicist Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka-1212
6	K.M Masud Rana	Treasurer	Medical Physicist National Institute of Cancer Research and Hospital, Mohakhali, Dhaka-1212
7	Prof. Md. Serajul Islam	Member	Dept. of Medical Physics & Biomedical Engineering, Gono University, Dhaka-1344
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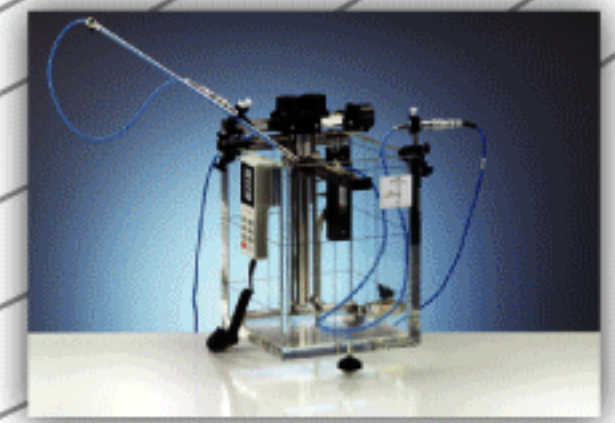
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