A Medical Physics Training Opportunity for Young Physicists in Trieste

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1. Why a Master in Medical Physics?

- There is a worldwide shortage of clinical medical physics professionals and medical physics academics. The safe and effective implementation of technology in Imaging Medical Physics, Therapeutic Medical Physics and Medical Radiation Dosimetry requires oversight and support from expert medical physicists.
- IAEA in the HHS No. 25 (2013) recognizes in low and medium income countries:
  - A shortage of clinically qualified medical physicists (CQMPs)
  - Insufficient education and training (especially properly organized and coordinated clinical training)
  - Lack of professional recognition.
- Medical physics was classified as a Profession by the United Nations International Labor Organization (ILO) in 2011.

2. The Master Program

- The Master Program in Medical Physics is a 2-years master of advanced studies (Master di II livello) of the University of Trieste and consists of basic and advanced courses and practical and clinical training given by experts in these fields.
- In the first year 330 hours of lectures and 230 hours of guided exercises are devoted to:
  - Radiobiology
  - Anatomy and Physiology
  - Radiation Physics
  - Radiation Dosimetry and Radiation Protection
  - Medical Physics Imaging fundamentals
  - Imaging Detectors
  - Physics of Nuclear Medicine
  - Physics of diagnostic and Interventional Radiology
  - Physics of Radiation Oncology
  - Information Technology
  - Monte Carlo simulation methods
  - Statistics for Medicine
- The second year is spent in a medical physics department of the hospitals’ network for a full time clinical training in radiotherapy, diagnostic and interventional radiology, nuclear medicine and radiation protection.
- The clinical training is informed by the IAEA (TCS37, TCS47 and TCS50) and ACCRA recommendations

3. The partners

- The University of Trieste and the International Centre for Theoretical Physics (ICTP) have developed the Master program according to the recommendations of International Organization of Medical Physics (IOMP) and International Atomic Energy Agency (IAEA) for the education and the clinical training.
- The University hospital of Trieste cooperates both for teaching and first year training experiences.
- The Abdus Salam International Centre for Theoretical Physics (ICTP) is a UNESCO educational institution in Trieste with training initiatives in the area of medical physics.
- Full or partial scholarships are awarded to successful candidates developing countries, thanks to the support of the IAEA, TWAS (The World Academy Of Sciences), IOMP, EFOMP (European Federation of Medical Physics) and ICTP.

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<td>University Hospital of Trieste</td>
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5. Conclusions

- Every year the participants from Africa, South America, Asia, Europe and Middle East are selected among more than 300 applicants.
- IOMP and IAEA are seeing the master of advanced studies (Master di II livello) of the University of Trieste and ICTP as an answer to the growing demand of Medical Physicists in developing Countries.