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Personal Information

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Nationality:
Belgium

Sex:
M

Date of Birth:
1/31/1981

Languages

English
French
Arabic

Licencies

Clinical Medical Physicist authorized by Federal Agency for Nuclear Control (FANC), Belgium.

Certificate

- Ph.D. in Medical Physics field (Oct 2022) at ULB, Brussels, Belgium.
  Dissertation: *Dosimetric Verification of Special Clinical Techniques of Radiation Therapy Treatments using Monte Carlo Algorithm*.

Experience

Clinical Experience:

I have +10 years of clinical experience as Medical Physicist in the field of Radiotherapy, which includes but not limited to the following:

- **Commissioning/Acceptance Testing:**
  Participated in the commissioning of TrueBeam, Agility, IOERT (Mobetron 1000), Gamma knife (I Cone), Halcyon.
- **Accelerator Calibration:**
  is performed weekly, monthly, and annually, using PTW and IBA phantoms.
- **Treatment Planning:**
  Assist dosimetrists with difficult 3D planning, IMRT, VMAT, SRS, SBRT, using various treatment planning systems (TPSs) like Eclipse 16, Monaco 5, RaySearch 8, Elements, etc...
- **SRS:**
  Brainlab SRS planning and QA.
- **HDR planning and morning QA:**
  is performed with the Nucletron Microselectron remote after loader, and Oncentra TPS.
- **Chart Checks, Patient QA:**
  Checks are performed utilizing the Mosaiq and Aria Record and Verify systems and MUcheck. Patient specific QA is performed with Sun Nuclear (MapCheck), PTW (Octavious 4D), EBT3 films.
- **Accelerators performance Observation and troubleshooting:**
  Is performed for different radiotherapy machines like Varian, Elekta, IntraOp, Gamma Knife, Brainlab.

Simulation and Programing

Good experience of programming languages (Python, C++, MATLAB), so creating codes to automate daily work tasks.

During my Master and PhD, I did Monte Carlo simulation of 4 different accelerators using EGSnrc and Geant4 codes:

- Gamma Knife 192 sources: the objective was to verify the output factors for the 3 sizes of cones (16, 8, 4) mm as it uses directly in dose calculation.
- Clinac (Varian) 6 Mev: the objective was to compare the dose to water / dose to medium of Monte Carlo Vs (Monaco, Eclipse) TPSs.
- Infinity (Elekta): the objective was to compare dosimetry of SBRT of Moncao TPS Vs Monte Carlo.
- Mobetron 1000 (IntraOp): the objective was to simulate the shielding disk design, positions, and finally to use MC as TPS.

Working History

- 2016 – 2020: Part-time: working as clinical Medical Physicist at Radiotherapy department at Clinique Saint Jean (Bd du Jardin Botanique 32, 1000 Brussels, Belgium).
- 2011 – 2019: working as researcher at Radiotherapy department at Institute Jules Bordet (Bd de Waterloo 121, 1000 Brussels, Belgium).
- 2006 – 2011: Medical Physicist at Radiotherapy department at The Syrian Society against cancer, Aleppo, Syria.

Publications

- **First Author** of scientific papers, Oral presentation, and posters:

- *Physica Medica, European Journal of Medical Physics* ***(on processing sent to the journal) 2022***: ***Dose to Water and Dose to Medium: are they precisely calculated by Treatment Planning Systems (TPS)?***

- Alhamada H, Simon S, Gulyban A, Gastelblum P, Pauly N, VanGestel D, Reynaert N. ***Monte Carlo as quality control tool of stereotactic body radiation therapy treatment plans***. Phys Med. 2021 Apr;84:205-213.

- American Association of Medical Physics (AAPM) Virtual Meeting. 12/07/2020; 301823; PO-GeP-T-423 Topic: Photon External Beam Therapy: ***Evaluation of three conversion factors from dose to medium to dose to water in the radiotherapy dosimetry.***

- Alhamada H, Simon S, Philippson C, Vandekerkhove C, Jourani Y, Pauly N, Van Gestel D, Reynaert N. ***Monte Carlo dose calculations of shielding disks with different material combinations in intraoperative electron radiation therapy (IOERT).*** Cancer Radiother. 2020 Apr;24(2):128-134.

- Alhamada H, Simon S, Philippson C, Vandekerkhove C, Jourani Y, Pauly N. ***3D Monte Carlo dosimetry of intraoperative electron radiation therapy (IOERT).*** Phys Med. 2019;57: 207–214. pmid:30738527.

- Alhamada H, Simon S, Philippson C, Vandekerkhove C, Jourani Y, Pauly N, Dubus A, Reynaert N. ***Shielding disk position in intra-operative electron radiotherapy (IOERT): A Monte Carlo study***. Phys Med. 2018 Jul; 51:1-6.

- Alhamada, H., Simon, S., Jourani, Y., Vandekerkhove, C., Pauly, N., Dubus, A., & Reynaert, N. (2018). [OA239] "***Monte Carlo as quality control tool of machine performance and treatment planning system, is it a luxury or a necessity?"*** *Physica Medica, 52*, 89-90.

- Oral presentation (BHPA) Feb. 2017 Gent / Belgium. "***3D Dosimetry of Intra-Operative Radiotherapy (IOERT) with Electron Beams using GEANT4***".

- Oral presentation (BHPA) 27 Feb. 2016 Liège / Belgium. "***Monte Carlo Modeling of Gamma Knife Perfexion by using EGSnrc***".

- Oral presentation (BHPA) Feb. 2015 Antwerp / Belgium. "***Dosimetry impact of shielding Plates for Intra-Operative Radiotherapy (IORT) with Electron Beams***".

- 19èmes Journées de Radiothérapie Jan 2014 Lille / France.

- Oral presentation (BHPA) Feb. 2014 Louvain-la-Neuve / Belgium.