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Education：

1994 PhD, MP, Purdue University, West Lafayette IN, USA
1991 MS, MP, University of Missouri-Columbia, Columbia MO, USA
1985 BS, NE, National Tsing Hua University, Hsinchu, Taiwan

Professional Experiences

1998/2-present	Assistant Professor Department of Medical Imaging and Radiological Sciences, Chang Gung University, Taiwan
1998/2-present	Consultant Department of Radiation Oncology, Chang Gung Memorial Hospital, Taiwan
1996/1-1998/1	Medical Physicist, Cancer Center, Veterans General Hospital-Taipei, Taiwan

Research Interest:

- **Monte Carlo Radiotherapy Dose Simulation**
- **Dose Evaluation in Proton Radiotherapy**
- **Patient-Specific QA for Proton Radiotherapy**
- **Study in Uncertainties of Proton Radiotherapy**

The primary investigator (PI) serves as a consultant to the Department of Radiation Oncology, Chang Gung Memorial Hospital (CGMH) for many years (since 1998) and participated actively in the processes of determining equipment specifications, facility start-up, acceptance testing and commissioning of the proton therapy facility. PI also assisted in building up quality assurance and dosimetry systems for routine treatment. In the past few years, works to establish analytical and Monte Carlo dose simulation systems for research purposes were completed or on-going such that they are capable of simulating physics properties (absolute and relative) of all the CGMH proton beams. The PI also served as the head of the Dose Assessment Core Laboratory, Institute for

Radiological Research until 2017/9 to help in establishing research proton dose simulation and dosimetry systems. The established systems has been applied to irradiation test of space microelectronic devices for radiation damage effect and to dose assessment of patient specific quality assurance for patients receiving proton pencil beam scanning treatments. In addition, the PI also put efforts in research studies regarding proton treatment uncertainties. Main focus is on evaluation of dose variation due to uncertainty factors such as setup error、organ motion、CT to material conversion and range uncertainty. Dose simulation systems using the Monte Carlo technique to handle patient tissue heterogeneity (CT) and respiratory motion (4DCT) were also attempted. Actively participated research projects of the PI in the past few years include:

- **Application of Compton camera images in range and dose verification for proton therapy (PI, funding: CGMH)**
- **Study of uncertainty factors for proton radiotherapy (PI, funding: CGMH)**
- **Dosimetry analysis of the Chang Gung Memorial Hospital proton radiosurgery system (PI, funding: MOST)**
- **Machine and patient-specifc quality assurance procedures for intensity modulation proton therapy (PI, funding: MOST)**
- **Development of Proton Radiography and Proton CT for range verification (co-PI, funding: MOST)**
- **A quantitative study of dosimetric uncertainty caused by respiratory organ motion in proton therapy for HCC (co-PI, funding: MOST)**

Recent Publications: (Since 2012)

1. Lin YC, **Lee CC**, Chao TC, Tsai HY, "Ambient neutron dose equivalent during proton therapy using wobbling scanning system: Measurements and calculations", Radiation Physics and Chemistry, 140, 290-294, 2017.
2. Chao TC, Tsai YC, Chen SK, Wu SW, Tung CJ, Hong JH, Wang CC, **Lee CC***, "An MCNPX2.7.0 study of Bragg peak degradation owing to density heterogeneity patterns for a CGMH therapeutic proton beam", Radiation Physics and Chemistry, 137, 121-124, 2017
3. S. K. Chen, B. H. Chiang, **C. C. Lee**, C. J. Tung, J. H. Hong and T. C. Chao. The impact of MCS models and EFAC values on the dose simulation for a proton pencil beam. Radiation Physics and Chemistry, , 137, 29-32, 2017
4. **Lee CC**, Lee YJ, Chen SK, Chiang BH, Tung CJ, Chao TC, " MCNPX simulation of proton dose distribution in a pure water phantom", Biomedical Journal, 38(5), 414-420, 2015
5. Cai SY, Chao TC, Lin MJ, Tung TC, **Lee CC***, "Depth Dose Characteristics of Proton Beams within Therapeutic Energy Range using the PTSim Monte Carlo Technique", Biomedical Journal, 38(5), 408-413, 2015
6. Chao TC, Wei SC, Wu SW, Tung CJ, Tu SJ, Cheng HW, **Lee CC***, "Dual-resolution dose assessments for proton beamlet using MCNPX 2.6.0", Radiation Physics and Chemistry, 116, 237-240, 2015
7. Huang YW, Pan CY, Hsiao YY, Chao TC, **Lee CC**, Tung CJ, " Monte Carlo simulations of the relative biological effectiveness for DNA double strand breaks from 300 MeV u−1 carbon-ion

beams", Physics in medicine and biology, 60(15), 5995–6012, 2015

8. Kron T, Azhari HA, Voon EO, Cheung KY, Ravindran P, Soejoko D, Inamura K, Han Y, Ung NM, Bolortuya TsedenIsh, Win UM, Srivastava R, Marsh S, Farrukh S, Rodriguez L, Men Kuo, Baggarley S, DilipKumara AH, **Lee CC**, Krisanachinda A, Nguyen XC, Ng KH, "Medical physics aspects of cancer care in the Asia Pacific region: 2014 survey results", Australas Phys Eng Sci Med, 38(3), 493-501, 2015
9. Wu SW, CJ Tung , **Lee CC**, Fan KH, Huang HC, Chao TC, "Impact of the material composition on proton range variation–A Monte Carlo study", Radiation Physics and Chemistry, 116, 199-206, 2015
10. **Lee CC**, Wu JF, Chang KP, Chu CH, Wey SP, Liu HL, Tung CJ, Wu SW, Chao TC, "The Use of Normoxic Polymer Gel for Measuring Dose Distributions of 1, 4 and 30 mm Cones", Radiation Physics and Chemistry, 104(11), 221-224, 2014
11. Yeh CY, Tung CJ, **Lee CC**, Lin MH, Chao TC, "Measurement-based Monte Carlo Simulation of High Definition Dose Evaluation for Nasopharyngeal Cancer Patients Treated by using Intensity Modulated Radiation Therapy", Radiation Measurements, 71(5), 333-337, 2014
12. Yeh CY, Tung CJ, Chao TC, Lin MH, **Lee CC***, "A dual resolution measurement based Monte Carlo simulation technique for detailed dose analysis of small volume organs in the skull base region", Radiation Physics and Chemistry, 104(11), 389-392, 2014
13. Yeh CY, **Lee CC**, Chao TC, Lin MH, Lai PA, Liu FH, Tung CJ, " Application of the measurement-based Monte Carlo method in nasopharyngeal cancer patients for intensity modulated radiation therapy". Radiation Physics and Chemistry, 95(2), 240-242, 2014
14. **Lee CC**, Lee YJ, Tung CJ, Cheng HW, Chao TC , "MCNPX Simulation of Proton Dose Distribution in Homogeneous and CT Phantoms", Radiation Physics and Chemistry, 95(2), 302-304, 2014
15. Lin YC, Wang JJ, Hong JH, Lin YP, **Lee CC**, Wai YY, Ng SH, Wu YM, Wang CC, "Noninvasive Monitoring of Microvascular Changes with Partial Irradiation Using Dynamic Contrast-Enhanced and Blood Oxygen Level-Dependent MRI", Int. J. Radiation Oncology Biol. Phys., 85(5), 1367-1374, 2013
16. Lin MH, Li J, Price RA, Wang L, **Lee CC**, Ma CM, "The dosimetric impact of dental implants on head-and-neck volumetric modulated arc therapy", Physics in Medicine and Biology, 58(1), 1027–1040, 2013
17. Tsai PF, Lin SM, Lee SH, Yeh CY, Huang YT, **Lee CC**, Hong JH, "The feasibility study of using multiple partial volumetric-modulated arcs therapy in early stage lift-sided breast cancer patients", Journal of Applied Clinical Medical Physics, 13(5), 62-73, 2012
18. Wang CC, Hsiao Y, **Lee CC**, Chao TC, Wang CC & Tung CJ, "Monte Carlo simulations of therapeutic proton beams for relative biological effectiveness of double strand break", International Journal of Radiation Biology, 88(1), 158-163, 2012