Stanford



Gregory Arthur Szalkowski

Clinical Assistant Professor, Radiation Oncology - Radiation Physics

Bio

ACADEMIC APPOINTMENTS

- Clinical Assistant Professor, Radiation Oncology - Radiation Physics

PROFESSIONAL EDUCATION

- Residency, University of North Carolina, Chapel Hill , Radiation oncology physics (2022)
- PhD, Georgia Institute of Technology , Medical Physics (2019)
- BS, Georgia Institute of Technology , Nuclear and Radiological Engineering (2014)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Workflow automation, radiotherapy quality assurance, machine learning

Teaching

COURSES

2026-27

- Experiential Learning in Medical Physics: BMP 257, RADO 257 (Spr)
- Physics of Radiation Therapy: BMP 252, RADO 252 (Win)

2025-26

- Experiential Learning in Medical Physics: BMP 257, RADO 257 (Spr)
- Medical Physics and Dosimetry: BMP 251, RADO 251 (Aut)
- Physics of Radiation Therapy: BMP 252, RADO 252 (Win)

2024-25

- Medical Physics and Dosimetry: BMP 251, RADO 251 (Aut)
- Physics of Radiation Therapy: BMP 252, RADO 252 (Win)

2023-24

- Medical Physics and Dosimetry: BMP 251, RADO 251 (Aut)
- Physics of Radiation Therapy: BMP 252, RADO 252 (Win)

Publications

PUBLICATIONS

- **Transformer-encoded nnU-Net with local region perceptron and contrastive learning (TLC-nnUNet) for multiple brain metastasis detection and delineation.** *Physics in medicine and biology*
  Zhang, K., Szalkowski, G. A., Soltys, S., Hori, Y., Park, D. J., Timmerman, R. D., Wardak, Z., He, L., Wang, Q., Chen, M., Jiang, H., Lu, W., Gu, et al
  2026
- **NTCP model guided whole brain radiation re-planning to reduce risk of acute xerostomia and dry eye.** *Journal of applied clinical medical physics*
  Szalkowski, G., Fenoli, J., Oakey, M., Tan, X., Pearlstein, K. A., Royce, T. J., Chera, B. S., Das, S. K., Wang, K., Mavroidis, P.
  2025; 26 (12): e70344
- **Single- versus multi-fraction spine stereotactic radiosurgery (ALL-STAR) for patients with spinal metastases: a randomized phase III trial protocol.** *BMC cancer*
  Pratapneni, A., Klebaner, D., Soltys, S. G., Rahimy, E., Gibbs, I. C., Chang, S. D., Li, G., Hayden Gephart, M., Veeravagu, A., Szalkowski, G. A., Gu, X., Wang, L., Chuang, et al
  2025; 25 (1): 323
- **Use of Carbon Fiber Implants to Improve the Safety and Efficacy of Radiation Therapy for Spine Tumor Patients.** *Brain sciences*
  Lam, F. C., Guru, S., AbuReesh, D., Hori, Y. S., Chuang, C., Liu, L., Wang, L., Gu, X., Szalkowski, G. A., Wang, Z., Wohlers, C., Tayag, A., Emrich, et al
  2025; 15 (2)
- **Efficient and accurate commissioning and quality assurance of radiosurgery beam via prior-embedded implicit neural representation learning.** *Medical physics*
  Liu, L., Chang, C., Wang, L., Gu, X., Szalkowski, G., Xing, L.
  2025
- **Automatic Treatment Planning for Radiation Therapy: A Cross-Modality and Protocol Study** *ADVANCES IN RADIATION ONCOLOGY*
  Szalkowski, G., Xu, X., Das, S., Yap, P., Lian, J.
  2024; 9 (12)
- **Automatic Treatment Planning for Radiation Therapy: A Cross-Modality and Protocol Study.** *Advances in radiation oncology*
  Szalkowski, G., Xu, X., Das, S., Yap, P. T., Lian, J.
  2024; 9 (12): 101649
- **Where Does Auto-Segmentation for Brain Metastases Radiosurgery Stand Today?** *Bioengineering (Basel, Switzerland)*
  Kim, M., Wang, J. Y., Lu, W., Jiang, H., Stojadinovic, S., Wardak, Z., Dan, T., Timmerman, R., Wang, L., Chuang, C., Szalkowski, G., Liu, L., Pollom, et al
  2024; 11 (5)
- **Stereotactic radiosurgery for sarcoma metastases to the brain: a single-institution experience.** *Neurosurgical focus*
  Zamarud, A., Park, D. J., Dadey, D. Y., Yoo, K. H., Marianayagam, N. J., Yener, U., Szalkowski, G. A., Pollom, E., Soltys, S., Chang, S. D., Meola, A.
  2023; 55 (2): E7
- **Stereotactic body radiotherapy optimization to reduce the risk of carotid blowout syndrome using normal tissue complication probability objectives** *JOURNAL OF APPLIED CLINICAL MEDICAL PHYSICS*
  Szalkowski, G., Karakas, Z., Cengiz, M., Schreiber, E., Das, S., Yazici, G., Ozyigit, G., Mavroidis, P.
  2022; 23 (5): e13563
- **Synthetic digital reconstructed radiographs for MR-only robotic stereotactic radiation therapy: A proof of concept** *COMPUTERS IN BIOLOGY AND MEDICINE*
  Szalkowski, G., Nie, D., Zhu, T., Yap, P., Lian, J.
  2021; 138: 104917
- **Feasibility Study of Cross-Modality IMRT Auto-Planning Guided by a Deep Learning Model**
  Szalkowski, G., Xu, X., Das, S., Yap, P., Lian, J.
  WILEY.2021

- **Image Synthesis for Planning and Target Tracking of MR-Based Stereotactic Radiation Therapy**
  Szalkowski, G., Nie, D., Zhu, T., Yap, P., Lian, J.
  WILEY.2021
- **Optimization of hexagonal-pattern minibeams for spatially fractionated radiotherapy using proton beam scanning** *MEDICAL PHYSICS*
  Charyyev, S., Artz, M., Szalkowski, G., Chang Chih-Wei, Stanforth, A., Lin Liyong, Zhang Rongxiao, Wang, C.
  2020; 47 (8): 3485-3495
- **Computer-Aided Star Shot Analysis for Linac Quality Assurance Testing**
  Szalkowski, G. A., Roper, J.
  TAYLOR & FRANCIS INC.2019: 905-911
- **Monte Carlo Study of Photon Minibeams**
  Szalkowski, G., Wang, C., Charyyev, S.
  WILEY.2018: E614
- **Development of Proton Minibeams as New Form of GRID Radiotherapy**
  Charyyev, S., Wang, C., Szalkowski, G.
  WILEY.2018: E488
- **Design of Faraday cup ion detectors built by thin film deposition** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*
  Szalkowski, G. A., Darrow, D. S., Cecil, F. E.
  2017; 848: 87-90