

2024 MIDWEST

RADIATION ONCOLOGY

SYMPOSIUM

Unlocking Innovations in Cancer Care – AI in Radiation Oncology

Friday, Aug. 23

7:00 a.m. Registration / Continental Breakfast

7:45 a.m. Department Chair Welcome and Introductory Remarks
Charles A. Enke, MD, FASTRO, FACR

8:00 a.m. **KEYNOTE PRESENTATION:**
Advances in AI-Based Prediction Models for Radiation Oncology
Clifton David Fuller, MD, PhD

SESSION 1: GENITOURINARY CANCER I

Moderator: Michael Baine, MD, PhD

9:00 a.m. Assessing Cancer Treatment Efficacy: The Past, the Present, and the Future!
Harshraj Leuva, MBBS

9:20 a.m. Radiomics: The Intersection of Artificial Intelligence and Prostate Cancer Risk Stratification
Linda M. Huynh, PhD, MSc

9:40 a.m. Q&A

9:55 a.m. Break

SESSION 2: GENITOURINARY CANCER II

Moderator: Charles A. Enke, MD, FASTRO, FACR

10:10 a.m. The Use of Nuclear Imaging in the Workup and Management of a Renal Mass
Jared P. Schober, MD

10:30 a.m. Prostate Cancer Treatment and PSMA PET Imaging: Patterns of Care at June E. Nylen Cancer Center
Lisa Chaiken, MD

10:50 a.m. Q&A

SESSION 3: SARCOMA

Moderator: Andrew Wahl, MD

11:05 a.m. Current and Novel Radiotherapy Approaches to Soft Tissue Sarcoma
Andrew Wahl, MD

11:25 a.m. Surgical Approaches to the Management of Soft Tissue Sarcomas
Sean McGarry, MD

11:45 a.m. Q&A

12:00 p.m. Lunch

SYMPOSIUM FACULTY

Symposium Director

Chi Lin, MD, PhD

Professor and Vice Chair of Research, Department of Radiation Oncology, UNMC

Keynote Speakers

Clifton David Fuller, MD, PhD

Professor, Department of Radiation Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX

Xiaofeng Yang, PhD, DABR

Paul W. Doetsch Associate Professor; Vice Chair for Medical Physics Research, Department of Radiation Oncology, Emory University School of Medicine, Atlanta, GA

Guest Speakers

Hana Baroudi, MS

Graduate Research Assistant, The University of Texas MD Anderson Cancer Center, Houston, TX

Serdar Charyyev, PhD

Clinical Assistant Professor, Radiation Oncology - Radiation Physics, Stanford University, Stanford, CA

Yabo Fu, PhD

Assistant Attending Physicist, Memorial Sloan Kettering Cancer Center, New York, NY

Hao Gao, PhD

Associate Professor, Director of Physics Research, Department of Radiation Oncology, University of Kansas, Kansas City, KS

Megan Hyun, PhD, DABR

Associate Attending Physicist and Residency Director, Memorial Sloan Kettering Cancer Center, New York, NY

Sara Abou Naej, MS

Medical Physics Resident, American University of Beirut Medical Center, Beirut, Lebanon

Jeffrey Ryckman, MD

Assistant Professor, Department of Radiation Oncology, West Virginia University Medicine Camden Clark Medical Center, Parkersburg, WV

Xiandong Zhao, PhD

Assistant Professor of Radiation Oncology, Washington University School of Medicine in St. Louis, St. Louis, MO

Dandan Zheng, PhD, DABR

Professor; Director of Medical Physics, Department of Radiation Oncology, University of Rochester, Rochester, NY

SESSION 4: BRAIN TUMOR

Moderator: Chi (Kevin) Zhang, MD, PhD

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| 1:00 p.m. | Applications of Artificial Intelligence in Brain Tumor Diagnosis
Jie Chen, MD, PhD |
| 1:20 p.m. | Repurposing FDA-Approved Drugs for Glioma Therapy
Nicole Shonka, MD |
| 1:40 p.m. | Accurate Prediction of Individual Brain Function Maps From Structural Imaging Utilizing Deep Learning
Michele Aizenberg, MD, FAANS, FACS |
| 2:00 p.m. | Radiomic-Assisted Imaging Diagnosis of Brain Metastasis: How to Exceed Human Eye Limitations
Chi (Kevin) Zhang, MD, PhD |
| 2:20 p.m. | Q&A |
| 2:50 p.m. | Break |

SESSION 5: HEPATOCELLULAR CARCINOMA

Moderator: Chi Lin, MD, PhD

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| 3:05 p.m. | Targeting the Core: Yttrium-90 Radioembolization in Hepatocellular Carcinoma Management
Joseph McBride, MD |
| 3:25 p.m. | Stereotactic Body Radiation Therapy (SBRT) for Hepatocellular Carcinoma
Chi Lin, MD, PhD |
| 3:45 p.m. | Optimizing Treatment Strategies: Immunotherapy in Combination with Local Therapy for Hepatocellular Carcinoma
Mridula Krishnan, MBBS |
| 4:05 p.m. | Q&A |
| 4:20 p.m. | Adjourn for the Day |

Saturday, Aug. 24

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| 7:00 a.m. | Registration / Continental Breakfast |
| 7:45 a.m. | Introduction by the Director of Medical Physics
Sumin Zhou, PhD |
| 8:00 a.m. | KEYNOTE PRESENTATION:
Leveraging AI in Precision Radiotherapy: Advancements in Medical Image Analysis
Xiaofeng Yang, PhD, DABR |

SESSION 6: AI IN RADIOTHERAPY APPLICATION I

Moderator: Kyuhak Oh, PhD

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| 9:00 a.m. | AI-Powered Precision: Real-Time Markerless Tracking in X-Ray Imaging
Yabo Fu, PhD |
| 9:20 a.m. | Use of AI to Improve Access to Radiotherapy in Low and Middle-Income Countries (LMICs)
Hana Baroudi, MS |
| 9:40 a.m. | Q&A |
| 9:55 a.m. | Break |

Symposium Faculty — UNMC

Omar K. M. Abughanimeh, MBBS

Assistant Professor, Division of Oncology and Hematology, Department of Internal Medicine

Michele Aizenberg, MD, FAANS, FACS

Professor, Department of Neurosurgery, UNMC; Director, Brain and Spine Cancer Center, Nebraska Medicine

Michael Baine, MD, PhD

Assistant Professor, Department of Radiation Oncology

David Berkheim, MD

Assistant Professor, Division of Cardiothoracic Surgery, Department of Surgery

Lisa Chaiken, MD

Assistant Professor, Department of Radiation Oncology

Jie Chen, MD, PhD

Assistant Professor, Department of Pathology, Microbiology and Immunology

Charles A. Enke, MD, FASTRO, FACR

Chairman and Professor, Department of Radiation Oncology

Kyle J. Gallagher, PhD, DABR

Assistant Professor; Medical Physics Residency Program Director, Department of Radiation Oncology

Linda M. Huynh, PhD, MSc

Graduate Research Assistant, Department of Radiation Oncology

Qateeb Khan, MD

Assistant Professor, Department of Radiation Oncology

Mridula Krishnan, MBBS

Assistant Professor, Division of Oncology and Hematology, Department of Internal Medicine

Harshraj Leuva, MBBS

Assistant Professor, Division of Oncology and Hematology

Ruirui Liu, PhD, CHP

Medical Physicist; Assistant Professor, Department of Radiation Oncology

Joseph McBride, MD

Associate Professor; Chief, Division of Interventional Radiology, Department of Radiology

Sean McGarry, MD

James R. Neff Musculoskeletal Oncology Chair; Associate Professor, Department of Orthopaedic Surgery and Rehabilitation

Kyuhak Oh, PhD

Medical Physics Resident, Department of Radiation Oncology

Jared P. Schober, MD

Assistant Professor, Division of Urologic Surgery, Department of Surgery

Diane Schott, PhD, DABR

Assistant Professor and Education Outreach Program Director, Department of Radiation Oncology

SESSION 7: FLASH RADIOTHERAPY

Moderator: Kyle J. Gallagher, PhD, DABR

10:10 a.m. Normal Tissue Sparing via Proton FLASH, Spatially Fractionated Radiation Therapy (SFRT) and Beyond
Hao Gao, PhD

10:30 a.m. G4NDA-Based Radiochemical Monte Carlo Model to Investigate DNA Damage and FLASH Mechanism
Xiandong Zhao, PhD

10:50 a.m. Q&A

SESSION 8: INNOVATION IN MEDICAL PHYSICS EDUCATION

Moderator: Diane Schott, PhD

11:05 a.m. An International Exchange: Bi-Directional Global Health Rotation for Residency Training Programs in a High-Income Country and a Low- and Middle-Income Country
Sara Abou Naej, MS

11:25 a.m. Innovative Patient Communication Training Using eLearning and Simulation
Megan Hyun, PhD, DABR

11:45 a.m. Q&A

12:00 p.m. Lunch

SESSION 9: NON-SMALL CELL LUNG CANCER

Moderator: Weining (Ken) Zhen, MD, FACR, FASTRO

1:00 p.m. Debunking Myths: Is More Resection Always Better in Stage I Lung Cancer?
David Berkheim, MD

1:20 p.m. SBRT in Centrally-Located Stage I Lung Cancer: Navigating Treatment Challenges
Qateeb Khan, MD

1:40 p.m. Expanding Treatment Horizons: The Role of Immunotherapy in Stage I Lung Cancer
Omar K. M. Abughanimeh, MBBS

2:00 p.m. Explainable Artificial Intelligence to Identify Dosimetric Predictors of Toxicity in Patients with Locally Advanced Non-Small Cell Lung Cancer: A Secondary Analysis of RTOG 0617
Jeffrey Ryckman, MD

2:20 p.m. Q&A

2:50 p.m. Break

SESSION 10: AI IN RADIOTHERAPY APPLICATION II

Moderator: Shuo Wang, PhD

3:05 p.m. Adaptive Radiotherapy and the Role of Artificial Intelligence
Dandan Zheng, PhD, DABR

3:25 p.m. Towards Developing an AI-Powered Digital Twin Modeling Framework for Personalized Radiotherapy
Ruirui Liu, PhD, CHP

3:45 p.m. Advancements of Artificial Intelligence in Proton Therapy
Serdar Charyyev, PhD

4:05 p.m. Q&A

4:25 p.m. Closing Comments by the Department Vice Chair of Research
Chi Lin, MD, PhD

4:30 p.m. Adjourn

Nicole Shonka, MD

Associate Professor and Education Outreach Program Director, Division of Oncology and Hematology, Department of Internal Medicine; Medical Director, Clinic and Infusion Center, Fred & Pamela Buffett Cancer Center

Andrew Wahl, MD

Associate Professor; Medical Residency Program Director, Department of Radiation Oncology

Shuo Wang, PhD

Associate Professor, Department of Radiation Oncology

Chi (Kevin) Zhang, MD, PhD

Associate Professor, Department of Radiation Oncology

Weining (Ken) Zhen, MD, FACR, FASTRO

Professor and Medical Director, Department of Radiation Oncology

Sumin Zhou, PhD

Professor and Director of Medical Physics, Department of Radiation Oncology

Symposium Planning Committee

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Yu Lei, PhD

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