

KEYNOTE TALK

Tuesday, October 15, 2019 at 1:30pm
(Emerald Bay 123)

Bringing math into the clinic: Mathematical Oncology at City of Hope

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Abstract: In this keynote lecture, I will provide vignettes of applications of mathematical modeling aimed at use in the clinic within the Division of Mathematical Oncology at City of Hope. I will focus on the use of non-invasive imaging (MRI, PET) to calibrate and validate patient-specific mathematical models of cancer growth and response to therapy. Applications include primary brain tumors and breast cancer, with therapeutic applications including cell-based therapies, radiation therapy, and combination therapies. I will provide a forward-looking view of Mathematical Oncology at City of Hope and present clinical challenges that may be addressed with mathematical modeling.



Speaker Bio-Sketch: Russel Rockne earned a double Bachelor's degree in mathematics and fine art at the University of Colorado at Boulder, followed by a Master's degree and Ph.D. in applied mathematics from the University of Washington, Seattle. He entered the field of Mathematical Oncology following his Ph.D. advisor Dr. Kristin R. Swanson, building patient-specific mathematical models of brain tumor growth and response to treatment, with a particular emphasis on multi-modal imaging data (MRI, PET) and radiation therapy. Following a postdoctoral period at Northwestern University in Chicago Illinois, Dr. Rockne was recruited to the Beckman Research Institute at City of Hope

(COH) National Medical Center in 2015 and established the Division of Mathematical Oncology within the Department of Computational and Quantitative Medicine. The aim of Dr. Rockne's research is to bring mathematics into the clinic to help improve outcomes for patients with cancer.