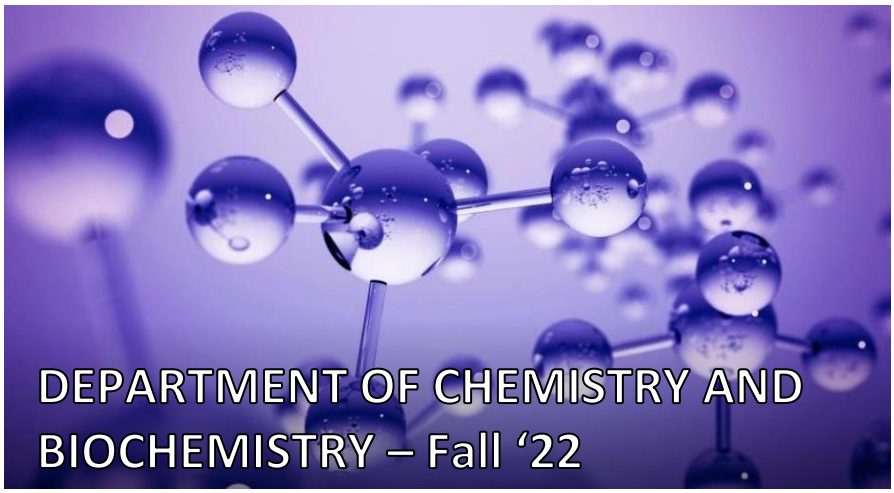

THE SALZBERG CHEMISTRY SEMINAR SERIES

The City College of New York

CREST IDEALS PHASE II

Monday, September 19, 2022 @ 12:00 noon – MR1027

Faster than the speed of light

Jan Grimm

Molecular Pharmacology Program
Memorial Sloan Kettering Cancer Center

Abstract: Cerenkov luminescence is the dim blue-light produced by charged particles traveling faster than the speed of a light through a dielectric medium such as tissue. These particles can originate from various sources, most prominently though from the decay of radio-isotopes. While this phenomenon has been known since almost 100 years, it was only recently that it has been recognized as tool for optical *in vivo* imaging of radiotracers. In this context Cerenkov Luminescence Imaging (CLI) is an emerging modality that fuses nuclear and optical imaging as well as radiotherapy. Highly sensitive optical equipment to detect the low amount of photons emitted compared to other optical imaging modalities. However, it offers several compelling advantages. CLI utilizes clinical approved tracers, thus avoiding significant hurdles for approval of the imaging agent. By reverting to PET of the very same agent an internal standard is provided that allows for quantification as well as true multimodality imaging from the same imaging label. CLI allows for preoperative PET scanning and intraoperative imaging of tumors. Clinical Cerenkov is a feasible molecular imaging modality that seamlessly integrates with existing clinical SPECT, PET, and nuclear medicine procedures in an overall cheaper and faster application. At Memorial Sloan Kettering Cancer Center, we have imaged more than 100 patients with a commercially available Cerenkov imaging fiberscope in the largest ever trial on clinical Cerenkov imaging. Overall, Cerenkov imaging provides a paradigm shift, providing the first truly multimodal imaging system, merging optical and nuclear imaging and transgressing conventional borders between imaging systems, thus allowing for completely new imaging approaches and applications (e.g. intraoperative imaging) with a fast-track into the clinic. It is particularly appealing to fill a gap in underserved communities to allow access to radiotracer imaging.

Biography: Dr. Jan Grimm received his medical degree from the University of Hamburg and his PhD from the University of Schleswig-Holstein, both located in Germany. He was a postdoctoral fellow and later faculty in the Center for Molecular Imaging research at Massachusetts General Hospital in Boston from 2002-2006. He is currently a Member of the Molecular Pharmacology Program in the Sloan Kettering Institute, an Attending at Memorial Hospital (in Radiology and Molecular Imaging and Therapy service) and a Professor at the Gerstner Sloan Kettering Graduate School of Biomedical Sciences, all part of Memorial Sloan Kettering Cancer Center in New York. He is also faculty in Radiology and Pharmacology in Weill Cornell Medical College. His NIH and DoD funded Lab focuses on the development of novel and innovative imaging and therapy approaches for cancer diagnostics out of the usual framework. This includes understanding the biological basis while simultaneously keeping clinical translatability of the projects within sight. His lab was the first to utilize PET tracers clinically for optical imaging via the Cerenkov effect and is developing new approaches for this novel modality, including new smart therapy agents. Other novel imaging approaches used by the lab are optoacoustic imaging and multicolor PET imaging, as an expert in the field of nanotechnology he has used nanoparticles both for imaging and drug delivery and is now investigating the interaction of nanoparticles with the tumor environment to develop new cancer therapies paradigms. Dr. Grimm has authored numerous articles, reviews and book chapters. He was also a speaker at countless seminars, lectures and symposia. He received the NIBIB Edward Nagy New Investigator Award (2014) from the NIH and was elected Member of the American Society for Clinical Investigation in 2018. Dr. Grimm's clinical focus is on body and nuclear imaging. He is board certified in Radiology (German and US certification) and Nuclear Medicine (in the US).

Join Meeting in-person at MR-1027 or on Zoom at:
https://ccny.zoom.us/meeting/register/tZYuf-2orDorG9EdR3m8V2yHJsoO9O4cusPY