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March 2026

The Chemistry Behind Improved Surgical Outcomes with Fluorescent Contrast Agents

a talk by

Professor Lei Wang, Oregon Health & Science University

Thursday March 12, 2026, 6-9pm

Leikam Brewing
5812 E Burnside St
Portland, OR 97215

Dinner Reservations

Reserve your dinner for \$25/person (\$15 for undergraduate students, high school teachers, unemployed members). \$5 added for tickets purchased at the event.

Schedule: 6pm social—6:45 pm buffet dinner—7:45 pm program

Please contact Rob Jensen <robert.p.jensen@gmail.com> for any questions.

Abstract and bio next page.

Looking Ahead

Looking Ahead: Join us on Thursday, April 9th to hear from Dr. Theresa McCormick, Professor of Chemistry at Portland State University. On Thursday, May 14th to hear from Dr. David Stuart, Professor of Chemistry at Portland State University!

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The Chemistry Behind Improved Surgical Outcomes with Fluorescent Contrast Agents

Abstract

Contrast agents for fluorescence-guided surgery traces its roots to nineteenth-century dye chemistry, when early synthetic colorants launched the dye industry and, ultimately, the development of fluorescent molecules used throughout biology and medicine today. In cancer surgery, however, a major gap remains between preoperative imaging and intraoperative reality. Surgeons still rely heavily on visual and tactile cues to identify tumor margins and avoid critical structures such as nerves. Positive margins can worsen outcomes and necessitate additional therapy, while iatrogenic nerve injury can lead to persistent numbness, pain, or functional deficits. Fluorescence-guided surgery offers real-time, high-contrast visualization, but clinically useful nerve imaging agents remain limited. Many reported fluorophores show high nonspecific uptake and emit at visible wavelengths, reducing performance in tissue. In this lecture, we will discuss examples from our laboratory showing how small-molecule fluorophore design, guided by medicinal chemistry and photophysical principles, can produce contrast agents with the properties suitable for clinical translation. The talk will close with a view of where the field is heading, including multi-channel imaging and next-generation probes for surgical guidance and early disease detection.

Speaker Bio

Dr. Lei Wang is a faculty member in the Department of Biomedical Engineering at Oregon Health & Science University (OHSU) with a joint appointment in the OHSU Knight Cancer Institute. With expertise in fluorescence chemistry and optical imaging, Dr. Wang leads an innovative research program aimed at developing novel fluorescent probes and imaging technologies to address clinical challenges. His research interests include near-infrared (NIR) contrast agents for real-time surgical navigation, smart molecular probes for cancer-targeted imaging, and NIR fluorophores for the early detection of cancer and neurodegenerative diseases. Dr. Wang's research is supported by funding from the National Institutes of Health, Knight Cancer Institute, Brenden Colson Center for Pancreatic Care, and Collins Medical Trust. Motivated by transformative potential of chemistry-driven solutions in precision medicine, Dr. Wang and his team are devoted to bridging the gap between clinical needs and basic sciences through innovative imaging technologies.

[Another Chem & Engineering Story!](#)