

## 560.16 / NNN34 - Facilitating the adoption of oxygen partial pressure imaging with two-photon microscopy

📅 November 15, 2016, 8:00 - 12:00 PM

📍 Halls B-H

**Presenter at Poster**

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**Session Type**

Poster

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The assessment of brain oxygenation on the microscopic level has the potential to transform our understanding of important clinical problems, such as stroke, Alzheimer's disease, dementia, chronic hypertension, and brain cancer, facilitating the development of new therapies and helping to improve clinical imaging and treatment protocols. Until now, no technology has been capable of microscopic oxygen imaging in the brain with high spatial and temporal resolution. Over the past several years we have developed a method, termed two-photon phosphorescence lifetime microscopy of oxygen (2PLM), which has the unique capability of fulfilling this niche. This is the only imaging method that allows high resolution mapping of brain oxygenation in real time. 2PLM of oxygen is a combination of state-of-the-art two-photon enhanced phosphorescent probes and a unique variant of two-photon laser scanning microscopy - both of which are not presently available commercially. The transformative power of 2PLM of oxygen has been demonstrated in several high-impact publications [1-7], producing great interest in the neuroscience community. With the help of the NIH R24 grant mechanism, we are setting up a self-sustaining resource that will promote widespread use of the two-photon oxygen imaging technology, making this new powerful method available to a broad group of neuroscience researchers.

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