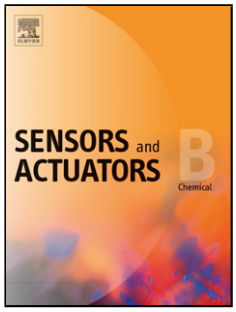

Title: A Platinum-porphine/Poly(perfluoroether) Film Oxygen Tension Sensor for Noninvasive Local Monitoring of Cellular Oxygen Metabolism using Phosphorescence Lifetime Imaging

Authors: Yihua Zhao, Liwei Liu, Teng Luo, Liang Hong, Xiao Peng, Robert H. Austin, Junle Qu

PII: S0925-4005(18)30863-3
DOI: https://doi.org/10.1016/j.snb.2018.04.154
Reference: SNB 24630

To appear in: *Sensors and Actuators B*

Received date: 27-1-2018
Revised date: 24-4-2018
Accepted date: 26-4-2018

Please cite this article as: Yihua Zhao, Liwei Liu, Teng Luo, Liang Hong, Xiao Peng, Robert H.Austin, Junle Qu, A Platinum-porphine/Poly(perfluoroether) Film Oxygen Tension Sensor for Noninvasive Local Monitoring of Cellular Oxygen Metabolism using Phosphorescence Lifetime Imaging, Sensors and Actuators B: Chemical https://doi.org/10.1016/j.snb.2018.04.154

A Platinum-porphine/Poly(perfluoroether) Film Oxygen Tension Sensor for Noninvasive Local Monitoring of Cellular Oxygen Metabolism using Phosphorescence Lifetime Imaging

Yihua Zhao[a], Liwei Liu[a,*], Teng Luo[a], Liang Hong[a], Xiao Peng, Robert H. Austin[a,b,*], Junle Qu[a,*]

[a]Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, China

[b]Department of Physics, Princeton University, Princeton, NJ 08544

[*]Corresponding authors. E-mail addresses: liulw@szu.edu.cn (Liwei Liu), austin@princeton.edu (Robert H. Austin), jlqu@szu.edu.cn (Junle Qu).

Highlights

- Phosphorescence lifetime imaging (PLIM)-based O2 level mapping is demonstrated;
- The chemical inert, gas-permeable and bio-biocompatible property of PFPE enables more precise long-term cell study in vitro;
- (3) The easy fabrication of PFPE microfluidic chip enables on-chip study O_2 environment of cell.