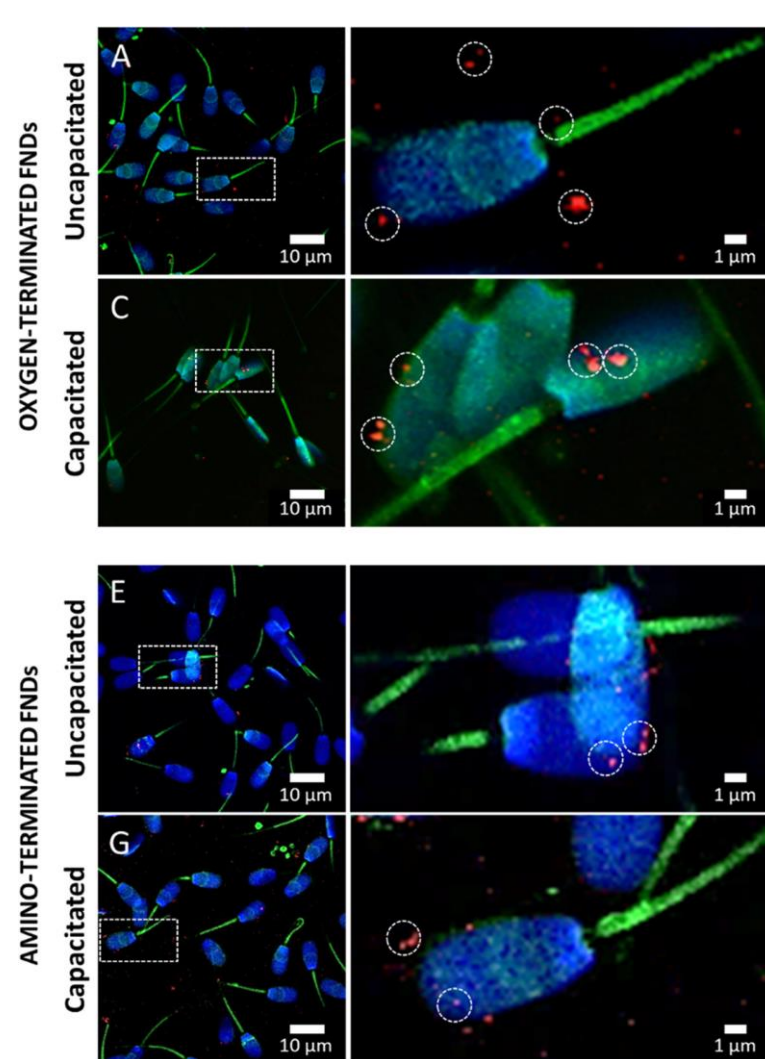


## Condensed Matter National Laboratory-IPM Workshop Series

# Diamond Magnetometry: a Quantum Sensing Technique



- Diamond magnetometry is a quantum sensing technique which allows nanoscale MRI. It is based on a defect in diamond, the so-called NV center, which changes its optical properties based on its magnetic surrounding. Since optical signals can be read out more sensitively, this technique offers unprecedented sensitivity. We will first give a general overview over different modes of diamond magnetometry and discuss advantages and drawbacks.
- In the second lecture we will focus on relaxometry, a specific mode of diamond magnetometry and how we use this technique to answer biological questions. More specifically, relaxometry is sensitive to magnetic noise and in a biological context this technique allows us to detect free radical generation which is an important biomarker for stress responses in cells and organisms and is difficult to access with state of the art technology.
- Finally, we will discuss the commercial applications of diamond magnetometry and more specifically of relaxometry. Further, we will introduce Diamond Visions and their activities to give an insight over the commercial aspects of diamond magnetometry that are currently available.

### Invited Speakers

**Romana Schirhagl (Groningen University)**

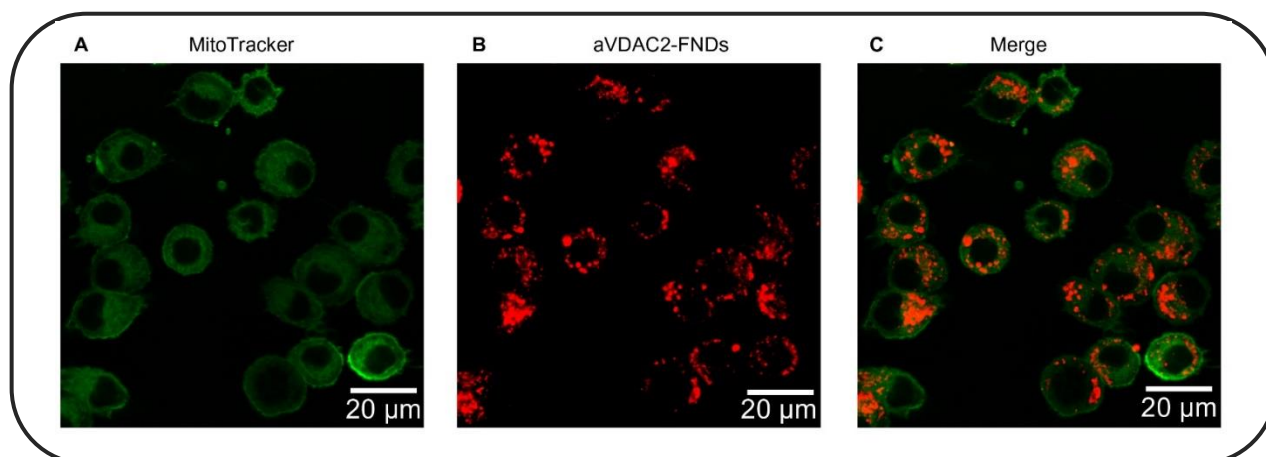
**Alina Sigaeva (Groningen University)**

### Organizing Committee

**Seyed Hamed Aboutalebi (IPM)**  
**Seyed Mohammad-Reza Taheri**  
**(Groningen University)**

**Date: 21<sup>st</sup> November 2022**

**Venue: Online**



**More information can be found at**  
**[cmnl.ipm.ac.ir](http://cmnl.ipm.ac.ir)**