

## N. Rokhaya FAYE (PhD)

Biomedical Engineering Department (BME)  
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## Postdoctoral Scientist

### EDUCATION

- 2010-2014** PhD degree in Lasers, Matter, Nanosciences (Biophysics), University of Bordeaux, France
- 2009-2010** Master's degree in "Cutaneous Physiology, Pharmacology and Bioavailability", University of Claude Bernard, Lyon, France
- 2007-2008** Master's degree in Structural biochemistry at the interface of biology, chemistry and physics, University of Bordeaux, France
- 2004-2007** Bachelor's degree in Biochemistry, University of Bordeaux, France

### SCIENTIFIC EXPERIENCES

- 2014-2017** Characterization of novel voltage-sensitive dyes for cardiac applications  
**Skills:** *Cardiac electrophysiology, Optical imaging, Epifluorescence imaging, Confocal microscopy, Histology*  
*Postdoctoral researcher at LIRYC – U1045, Electrophysiology and heart modelling institute, University of Bordeaux-France*  
*Supervisor: Pr Olivier Bernus*
- 2010-2014** Study of the interaction of silica nanoparticles with planar membrane models by Atomic force microscopy and fluorescence microscopy  
**Skills:** *Biomimetic membranes formation, AFM, Fluorescence microscopy, QCM-D, Langmuir Blodgett/Schaeffer, Scanning Electron Microscopy, Photon Correlation Spectroscopy*  
*PhD student at LOMA-UMR 5798, Laboratoire Ondes et Matière d'Aquitaine, University of Bordeaux, France,*  
*Supervisors: Pr Cohen-Bouhacina Touria, Dr Grauby-Heywang Christine*
- 03 to 09/2010** *In vivo* and *ex vivo* nanoparticles delivery into human skin: simultaneous Multiphoton imaging of silver nanoparticles penetration and of NAD(P)H redox state in intact and tape stripped skin  
**Skills:** *Cutaneous physiology and engineering, Dermo-cosmetic prevention, Formulation and Development of cosmetics, TEWL measurements, Advanced drug delivery, in vivo and ex vivo Fluorescence microscopy (2-Photons)*  
*Therapeutic Research Center (TRC), School of Medicine, University of Queensland, Australia*  
*Supervisors: Pr Michael Roberts, Dr Tarl Prow*
- 05-07/2009** Biophysical characterization of an antimicrobial peptide  
**Skills:** *Structural biochemistry, biomolecules chemistry, spectroscopies (ATR, RAMAN, SERS, QCM-D, PMIRRAS), molecular biology*  
*European institute of Chemistry and Biology (IECB), University of Bordeaux, France*  
*Supervisors: Dr Bernard Desbat, Dr Sabine Castano*
- 03-06/2008** Encapsulation of glucose and sucrose in polymeric vesicles"  
**Skills:** *Polymer self-assembly techniques (nanoprecipitation,...), advanced physico-chemical characterization (light scattering-DLS/SLS, Reflectometry, Colorimetry)*  
*National School of Chemistry and Physics of Bordeaux (LCPO), University of Bordeaux, France*  
*Supervisor: Dr Christophe Schatz*

### OTHER SKILLS

- 2010-2013** Teaching assistant in statics, optics, and fluid mechanics for undergraduate students  
Supervision of research projects of undergraduate and graduate students

## Languages

French (native speaker)  
English  
Spanish (academic level)

## Information Technology

Office Microsoft office (Excel, Word, PowerPoint)  
Software Kaleidagraph, Origin, GraphPad Prism, BrainVision analyser, Image J, Gwiddion

**2015** Animal surgery licence, Expérimentation animale niveau 1, University of Bordeaux

## COMMUNICATIONS

### *Peer-reviewed Publications*

Christine Grauby-Heywang, Fabien Moroté, Marion Mathelié-Guinlet, Ibtissem Gammoudi, **Ndeye Rokhaya Faye**, Touria Cohen-Bouhacina. Influence of oxidized lipids on palmitoyl-oleoyl-phosphatidylcholine organization, contribution of Langmuir monolayers and Langmuir-Blodgett films. *Chemistry and Physics of Lipids*. 2016; 200: 74-82

**Ndeye Rokhaya Faye**, Fabien Moroté, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Oxydation of Langmuir-Blodgett films of monounsaturated lipids studied by Atomic Force Microscopy. *Int. J. Nanotechnology. International Journal of Biological, Biomolecular, Agricultural, Food and Biotechnological Engineering*, 2013; 7 (6):441-448

Ibtissem Gammoudi, **Ndeye Rokhaya Faye**, Fabien Moroté, Daniel Moynet, Christine Grauby Heywang, and Touria Cohen Bouhacina. Characterization of Silica Nanoparticles in Interaction with Escherichia coli Bacteria. *International Journal of Biological, Biomolecular, Agricultural, Food and Biotechnological Engineering*, 2013; 10 (5):607-613

Tarl W Prow, Jeffrey E Grice, Lynlee L Lin, **Rokhaya Faye**, Margaret Butler, Wolfgang Becker, Elisabeth M T Wurm, Corinne Yoong, Thomas A Robertson, H Peter Soyer, Michael S Roberts. Nanoparticles and microparticles for skin drug delivery. *Advanced Drug Delivery Reviews*. 2011; 63 (6):470-91.

**Ndeye Rokhaya Faye**, Richard Walton, Philippe Pasdois, Sushmitha Raja, Alan Urban, Gihad Dargazanli, Olivier Bernus. Novel voltage-sensitive dyes to assess cardiac action potential properties. *Heart and Circulatory Physiology, American Journal of Physiology (2017) in progress*

### *Peer-reviewed conference proceedings*

**Ndeye Rokhaya Faye**, Ibtissem Gammoudi, Fabien Moroté, Christine Grauby-Heywang, TouriaCohen-Bouhacina. "Phase Behavior and Structure Properties of Supported Lipid Monolayers and Bilayers in Interaction with Silica Nanoparticles"  
*World Academy of Science, Engineering and Technology, Vol: 7 2013-06-23*

Ibtissem Gammoudi, **Ndeye Rokhaya Faye**, Fabien Moroté, Daniel Moynet, Christine Grauby-Heywang, Touria Cohen-Bouhacina. "Characterization of Silica Nanoparticles in Interaction with Escherichia coli Bacteria"  
*World Academy of Science, Engineering and Technology, Vol:7 No:7, 2013*

### *International conferences with peer-review*

Ndeye Rokhaya Faye, Fabien Moroté, **Christine Grauby-Heywang**, Touria Cohen-Bouhacina. Study of supported lipid monolayers in interaction with nanoparticles by AFM and fluorescence microscopy.  
*European Biophysical Societies' Association-EBSA: 8<sup>th</sup> European Biophysics Congress, Budapest (Hungary), August 23-27, 2011*

**Ndeye Rokhaya Faye**, Fabien Moroté, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Study of supported lipid bilayers in interaction with nanoparticles by AFM. *NanoSWEC conference Bioinspired Nanotechnology, Bordeaux (France), November 14-17, 2011.*

**Ndeye Rokhaya Faye**, Fabien Moroté, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Study by AFM and fluorescence microscopy of planar lipid monolayers and bilayers in interaction with silica nanoparticles.  
*European Biophysical Societies' Association-EBSA: Biophysics Course on Membrane Biophysics and lipid-protein interaction, Lacanau (France), Jun 24-29, 2012*

**Ndeye Rokhaya Faye**, Fabien Moroté, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Study of planar lipid monolayers in interaction with silica nanoparticles by fluorescence and atomic force microscopies.

*International Conference on Nanoscience + Technology (ICN+T2012), Paris (France), July 23-27, 2012*

**Ndeye Rokhaya FAYE**, Ibtissem Gammoudi, Fabien Moroté, Gérard Couturier, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Effects of nanotopography on biomimetic membranes organization.

*International Conference on Biophysical and Biomedical Engineering (ICBBE 2013), Paris (France), June 27-28, 2013*

Ibtissem Gammoudi, **Ndeye Rokhaya Faye**, Fabien Moroté, Daniel Moynet, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Characterization of Silica Nanoparticles in Interaction with Escherichia coli Bacteria

*International Conference on Biophysical and Biomedical Engineering (ICBBE 2013), Paris (France), June 27-28, 2013*

**Ndeye Rokhaya Faye**, Philippe Pasdois, Richard Walton, Sushmitha Raja, Alan Urban, Gihad Dargazanli, Olivier Bernus. Characterization of novel voltage-sensitive dyes for cardiac applications. *Biophysical Society 59th annual meeting, Baltimore (USA), February 7-11, 2015*

**Ndeye Rokhaya Faye**, Philippe Pasdois, Richard Walton, Sushmitha Raja, Alan Urban, Gihad Dargazanli, Olivier Bernus. Characterization of novel voltage-sensitive dyes for cardiac applications. *33 rd annual meeting of the European section of the ISHR, Bordeaux (France), July 1 - 4, 2015*

### ***National conferences with peer-review***

**Ndeye Rokhaya Faye**, Fabien Moroté, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Etude par AFM et Microscopie de Fluorescence de films lipidiques en interaction avec des nanoparticules.

*Forum 2012 des microscopies sonde locale Ecully-Lyon (France), March 12-16, 2011*

**Ndeye Rokhaya Faye**, Fabien Moroté, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Etude de modèles membranaires simplifiés de DMPC ou SM et de leur interaction avec des nanoparticules de silice.

*Société Française de Physique (SFP2011), Bordeaux(France), July 4-7, 2011*

**Ndeye Rokhaya Faye**, Fabien Moroté, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Etude de systèmes membranaires simplifiés en interaction avec des nanoparticules.

*Forum 2011 des microscopies à sonde locale Ecully-Lyon (France), St Jacut de la Mer-Rennes (France) March 28 – April 1<sup>er</sup>, 2012*

**Ndeye Rokhaya Faye**, Ibtissem Gammoudi, Fabien Moroté, Gérard Couturier, Christine Grauby-Heywang, Touria Cohen-Bouhacina. Effets de la nanotopographie sur l'organisation des membranes biomimétiques: Optimisation des protocoles de préparation des systèmes et de la caractérisation des dépôts.

*Forum 2013 des microscopies à sonde locale Spa(Belgium), March 25-29, 2013*

**Ndeye Rokhaya Faye**, Philippe Pasdois, Richard Walton, Fabien Brette, Sushmitha Raja, Alan Urban, Gihad Dargazanli, Olivier Bernus. Novel voltage-sensitive dyes to assess cardiac action potential properties.

*SANOFI SCIENCES DAYS – 2016 Paris (France), April 22 -25, 2016*

**Ndeye Rokhaya Faye**, Philippe Pasdois, Richard Walton, Fabien Brette, Sushmitha Raja, Alan Urban, Gihad Dargazanli, Olivier Bernus. Novel voltage-sensitive dyes to assess cardiac action potential properties.

*Printemps de la Cardiologie, Dijon (France), April 6 - 8, 2016*

## **REFERENCES**

### **Pr Olivier Bernus**

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Bordeaux  
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Avenue du Haut Lévêque, 33604 Pessac  
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### **Dr Tarl Prow**

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