

Curriculum Vitae - Prof. Dr. Nicolas Plumeré



• RESEARCH INTERESTS

Electron relays to bridge redox proteins and electrodes – Applications in biosensing, biophotovoltaics and H₂/O₂ biofuel cells – Bioconjugation methods for protein immobilization – Redox matrices to protect redox enzymes – Quantitative investigations of reaction/diffusion/protection processes within redox matrices – Surface modification and patterning for bioelectrochemistry.

• MY MOTIVATION TO JOIN THE BES COUNCIL

The activities of BES, in organizing conferences, in publishing specialized journals and in promoting early stage researchers has stimulated and inspired many scientists, including myself, in developing their own research directions as well as building strong cooperative networks. My motivation to join the BES council is to continue this philosophy of fostering the cohesion of our community. In particular, I will support activities that encourage the youngest bioelectrochemists to develop their careers and I will propose new topics for BES symposia to open our field to wider audiences. I have gained significant experience as a council member having already served on the board of ECHEMS and since more recently on the board of DBS (German Biosensor Symposium). With your support, it would be my honor to help strengthen our society in the future.

• WORK EXPERIENCE

2017 – Professor in Analytical Chemistry, Ruhr-University Bochum, Germany.
2010 – 2017 Group leader at the Center for Electrochemical Sciences, Ruhr-University Bochum, Germany.
2008 – 2009 Postdoctoral Fellowship with Prof. Dr. Wilbur H. Campbell, NECi, Lake Linden, MI, USA.

• EDUCATION

2009 PhD in inorganic chemistry (grade: *summa cum laude*), University of Tübingen, Germany.
2004 Chemistry studies, University of Strasbourg, France and University of West Scotland, Glasgow.

• AWARDS AND FELLOWSHIPS

2016 ERC starting grant in the field of bioelectrochemistry.
2006 DAAD Fellowship for a research stay at the San Jose State University, CA, USA.
2004-2007 DFG Fellowship (3 years) for the PhD thesis, University of Tübingen, Germany.

• CURRENT RESEARCH GROUP

2 Postdocs, 6 PhD students and 2 Master Students.

• ORGANISATION OF SCIENTIFIC MEETINGS AND GUEST EDITING OF SPECIAL ISSUES

2017 Organizer of the 2nd Workshop “Redox Films for Energy Conversion – Bioelectrochemical and Molecular Systems” in Marseille, France, September 28-29th, 2017.
2017 Organizer of the Symposium “Photobioelectrochemistry” at the meeting of the Bioelectrochemical Society “Bioelectrochemistry 2017” in Lyon, France, 3-7 July, France.
2016 Organizer of the Workshop “Redox Films for Energy Conversion – Bioelectrochemical and Molecular Systems” in Marseille, France, September 13th, 2016.
2016 Organizer of the Satellite Meeting “Biohybrid Solar cells” of the 17th International Congress on Photosynthesis Research in Slenaken, The Netherlands, August 4-7, 2016.
2013 Organizer of Symposium 4 “Design of the interface between biological recognition elements and electrodes” at the 12th topical meeting of the International Society of Electrochemistry in Bochum.

2011 – Guest editor for *Analytical and Bioanalytical Chemistry*, *Electrochimica Acta* and *Current Opinion in Electrochemistry* on the topic of Bioelectrochemistry.

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

Member of the Bioelectrochemical Society and of the International Society for Electrochemistry.

2015– Board member of ECHEMS, the international organization established in 2004 aimed at promoting the use and development of electrochemistry.

2015 – Board member of DBS, Deutsches Biosensor Symposium, established in 1999.

- **PUBLICATION LIST**

>40 publications, 20 as corresponding author including the ones in *Nature Nanotechnology*, *Nature Chemical Biology*, *Angew. Chem.*, *JACS*, *EES*, *Chem. Eur. J.*, *ACS Nano* and *Anal. Chem.*.

Ten most important publications:

H. Zhang, T. Oellers, W. Feng, T. Abdulazim, E. N. Saw, A. Ludwig, P.A. Levkin, **N. Plumeré***
High-Density Droplet Microarray of Individually Addressable Electrochemical Cells.
Anal. Chem., **2017**, 89 (11), 5832–5839

M. M. Nowaczyk, **N. Plumeré***. Short Circuit at the Chlorophyll.
Nature Chemical Biology **2016**, 12, 990-991 (News and Views).

K. Sokol, D. Mersch, V. Hartmann, J. Z. Zhang, M. M. Nowaczyk, M. Rögner, A. Ruff, W. Schuhmann, **N. Plumeré*** and E. Reisner*. Rational Wiring of Photosystem II to Hierarchical Indium Tin Oxide Electrodes using Redox Polymers.
Energy Environ. Sci., **2016**, 9, 3698-3709 (**Inside Front cover**)

A. Alsheikh Oughli, F. Conzuelo, M. Winkler, T. Happe, W. Lubitz, W. Schuhmann, O. Rüdiger*, **N. Plumeré***. Protection from oxidative damage of the O₂ sensitive [FeFe]-hydrogenase from *Chlamydomonas reinhardtii* using a redox hydrogel.
Angew. Chem. Int. Ed., **2015**, 54, 12329–12333.

V. Fourmond, S. Stapf, H. Li, D. Buesen, J. Birrell, R. Olaf; W. Lubitz, W. Schuhmann, **N. Plumeré***, C. Léger*. The mechanism of protection of catalysts supported in redox hydrogel films.
J. Am. Chem. Soc., **2015**, 137, 5494–5505.

N. Plumeré, O. Rüdiger, A. Alsheikh Oughli, R. Williams, J. Vivekananthan, S. Pöller, W. Schuhmann*, W. Lubitz*. A redox hydrogel protects hydrogenase from high potential deactivation and oxygen damage.
Nature Chemistry, **2014**, 6, 822–827.

T. Kothe, S. Pöller, F. Zhao, P. Fortgang, M. Rögner, W. Schuhmann*, **N. Plumeré***. Engineered electron transfer chain in Photosystem 1 based photocathodes outperforms electron transfer rates in natural photosynthesis.
Chem. Eur. J., **2014**, 20, 11029 – 11034 (**VIP**).

N. Plumeré*, J. Henig and W. H. Campbell. Enzyme-catalyzed O₂ removal system for electrochemical analysis under ambient air: application in an amperometric nitrate biosensor.
Anal. Chem., **2012**, 84, 2141-2146.

N. Plumeré. Single molecules: a protein in the spotlight.
Nature Nanotechnology, **2012**, 7(10), 616-617 (News and Views).

M. Swoboda, J. Henig, H.-M. Cheng, D. Brugger, D. Haltrich, **N. Plumeré***, M. Schlierf*. Enzymatic oxygen scavenging for photostability without pH drop in single-molecule experiments.
ACS Nano, **2012**, 6(7), 6364-6369.

N. Plumeré*, M. M. Nowaczyk, in *Adv. Biochem. Eng. Biotechnol.* (L. Jeuken, ed.), DOI: 10.1007/10_2016_7, Springer International Publishing Switzerland **2016**, “Biophotoelectrochemistry of Photosynthetic Proteins”.