

EDMOND MAGNER

EDUCATION

- 1979-1983 B.Sc. in Chemistry, University College, Cork.
1983-1985 M.S. in Chemistry, University of Rochester, Rochester, New York.
1985-1988 Ph.D. in Chemistry, University of Rochester, Rochester, New York.

EMPLOYMENT HISTORY

- 1997- Lecturer (1997-2002), Senior Lecturer (2002-2007), Associate Professor (2007-2012),
 Professor of Electrochemistry (2012-)
2014-2019 Executive Dean, Faculty of Science and Engineering, University of Limerick
2003-2010 Director, Materials and Surface Science Institute, University of Limerick.
1996-1997 Abbott Laboratories, Senior Scientist (1996-1997), Bedford, MA, USA.
1994-1996 MediSense, Inc., Scientist (1994-1996), Senior Scientist, (1996), Waltham, MA, USA
1989-1992 Postdoctoral research assistant with Professor A.M. Klibanov, Department of Chemistry,
 Massachusetts Institute of Technology, Cambridge, MA.
1989-1993 Postdoctoral research assistant with Professor W.J. Albery, Department of Chemistry,
 Imperial College, London.

RESEARCH WORK

My research focusses on the immobilisation of enzymes on surfaces, ranging from fundamental work on the immobilisation processes to applications in electrochemical biosensors, biofuel cells and biocatalytic reactors. Lead Investigator on research programmes that have secured €25 million for the University, with over €6 million for own research. Published 116 journal articles, 2 patents, 4 patent applications and over 150 conference proceedings.

PUBLICATIONS (10 recent)

1. Shortall, K., Arshi, S., Bendl, S., Xiao, X.X., Belochapkine, S., Demurtas, D., Soulimane, T., Magner, E. Coupled immobilized bi-enzymatic flow reactor employing cofactor regeneration of NAD⁺ using a thermophilic aldehyde dehydrogenase and lactate dehydrogenase, *Green Chemistry*, 2023, 25, 4553–4564.
2. Kapuri, N., Patil, N.N., Sankaran, A., Laffir, F., Geaney, H., Magner, E., Scanlon, M., Ryan, K.M., Singh, S. Engineering polymorphs in colloidal metal dichalcogenides: precursor-mediated phase control, molecular insights into crystallisation kinetics and promising electrochemical activity, *J. Mater. Chem. A*, 2023, 11, 11341–11353.
3. Shortall, K., Szymanska, K., Carucci, C., Soulimane, T., Magner, E. New enzymatic reactor designs: From enzymatic batch to 3D microreactors and monoliths in Biocatalyst Immobilization: Foundations and Applications, Ed. Maria Lujan Ferreira, Academic Press pp. 291-315, doi.org/10.1016/B978-0-323-91317-1.00001-3
4. Shortall, K., Otero, F., Bendl, S., Soulimane, T., Magner, E. Study of ALDH from *Thermus thermophilus*-Expression, Enzyme Immobilisation on Metal Organic Frameworks: The Effect of Buffer on the Stability of the Support. *Langmuir*, 2022, DOI 10.1021/acs.langmuir.2c01630
5. Arshi, S., Xiao, X.X., Belochapkine, S. Magner, E. Electrochemical Immobilisation of Glucose Oxidase for the Controlled Production of H₂O₂ in a Biocatalytic Flow Reactor. *ChemElectroChem.*, 2022, 10.1002/celec.202200319.
6. Shortall, K., Durack, E., Magner, E., Soulimane, T., Study of ALDH from *Thermus thermophilus*-Expression, Purification and Characterisation of the Non-Substrate Specific, Thermophilic Enzyme Displaying Both Dehydrogenase and Esterase Activity. *Cells*, 2021, DOI 10.3390/cells10123535
7. Tocco, D., Carucci, C., Todde, D., Shortall, K., Otero, F., Sanjust, E., Magner, E., Salis, A. Enzyme immobilization on metal organic frameworks: Laccase from *Aspergillus* sp. is better adapted to ZIF-zni rather than Fe-BTC. *Coll. Surf. B-Biointerfaces*, 2021, 10.1016/j.colsurfb.2021.112147
8. Serleti, A., Xiao, X., Shortall, K., Magner, E. Use of Self-Assembled Monolayers for the Sequential and Independent Immobilisation of Enzymes. *ChemElectroChem.* 2021, 8, 3911–3916.
9. Siepenkoetter, T., Mastin, H. ; Salaj-Kosla, U., Magner, E. Benzene Diazonium Sulfonate Modified Nanoporous Gold Electrodes for the Direct Detection of Copper(II) Ions. *ChemElectroChem.*, 2020, 7, 22, 4625-4632
10. Xiao, X.X., McGourty, K.D., Magner, E. Enzymatic Biofuel Cells for Self-Powered, Controlled Drug Release. *J. Amer. Chem. Soc.*, 2020, 142, 11602-11609
11. Xiao, X., Xia, H., Wu, R., Bai, L., Yan, L, Magner, E., Cosnier, S., Lojou, E., Zhu, Z. Liu, A. Tackling the Challenges of Enzymatic (Bio)Fuel Cells, *Chem. Rev.*, 2019, 119, 9509-9558.

12. Xiao, X., Conghail, P.O, Leech, D., Magner, E. Use of Polymer Coatings to Enhance the Response of Redox Polymer Mediated Electrodes, *ChemElectroChem*, 2019, **6**, 1344-1349.

THESIS SUPERVISION

Supervisor of theses of 26 Ph.D. and 12 M.Sc. researchers to completion.

EXTERNAL EXAMINER (total of 26)

Ph.D. Examiner (recent):

2023 Imperial College, Universität für Bodenkultur Wien, University of Ulster,

2022 Université de Lorraine, Maynooth University

2020 University of Bath

2019 Danish Technical University

CONFERENCES

Member of organising committee for 15 international conferences

Chair, XXV Bioelectrochemical Society Symposium, Limerick, 2023.

REVIEWER

Recent: EU H2020 (2022, 2019, 2017), DFG Germany (2023, 2021), ANR France (2020, 2019), Romanian National Research Council (2019 –), EPSRC (2005–present), L’Oreal UNESCO (2018–)

JOURNAL REVIEW

Referee for range of journals, including Ang. Chem. Int. Ed., J. Amer. Chem. Soc., Chem. Comm, Nature Materials, Langmuir, J. Phys. Chem. B, Elect. Comm., Anal. Chem., Ind. and Eng. Chem., Adv. Mater., J. Mol. Cat. B, etc.