BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
McEvoy, James Philip	Assistant Professor of Chemistry, Regis University
eRA COMMONS USER NAME JAMESMCEVOY	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Oxford University, U. K.	M.Chem.	1998	Chemistry
Oxford University, U. K.	Ph.D.	2002	Biological Chemistry
Oxford University, U. K.	Post-Doctoral Researcher	2002-2003	Biological Chemistry
Yale University, CT	Post-Doctoral Associate	2003-2006	Biological Chemistry

A. Positions and Honors.

Positions and Employment

2006-present Assistant Professor in Department of Chemistry, Regis College, Regis University, CO

Other Experience and Professional Memberships

2003-present Member, Society of Biological Inorganic Chemistry
2005-present Member, American Chemical Society
2006-present Member, International Society for Photosynthesis Research
2007-present Member, Council on Undergraduate Research
2009 Department of Energy Office of Basic Energy Sciences *ad hoc* grant reviewer

Honors

1998 Graduated with 1st class honors, 'Exhibitioner' scholarship winner
2003 Awarded Lockey Bequest and U. K. Diamond and Diamond-like Carbon Research Network travel grants.
2008-present Cottrell College Science Award, Research Corporation

B. Peer-reviewed publications (in chronological order).

1. McEvoy JP and Armstrong FA (1999) Protein film cryovoltammetry: demonstrations with a 7Fe ([3Fe-4S]+[4Fe-4S]) ferredoxin. *Chem. Commun.* 1999: 1635-1636.
2. Armstrong FA, Camba R, Heering HA, Hirst J, Jeuken LJC, Jones AK, Leger C and McEvoy JP (2000) Fast voltammetric studies of the kinetics and energetics of coupled electron-transfer reactions in proteins. *Faraday Discuss.* 116: 191-203. PMID: 11197478
3. Jeuken LJC, van Vliet P, Verbeet MP, Camba R, McEvoy JP, Armstrong FA and Canters GW (2000) Role of the surface-exposed and copper-coordinating histidine in blue copper proteins: The electron-transfer and redox-coupled ligand binding properties of His117Gly azurin. *J. Am. Chem. Soc.* 122: 12186-12194.
4. Chen KS, Bonagura CA, Tilley GJ, McEvoy JP, Jung YS, Armstrong FA, Stout CD and Burgess BK (2002) Crystal structures of ferredoxin variants exhibiting large changes in [Fe-S] reduction potential. *Nat. Struct. Biol.* 9: 188-192. PMID: 11875515
5. Jeuken LJC, McEvoy JP and Armstrong FA (2002) Insights into gated electron-transfer kinetics at the electrode-protein interface: A square wave voltammetry study of the blue copper protein azurin. *J. Phys. Chem. B* 106: 2304-2313.
6. McEvoy JP and Brudvig GW (2004) Structure-based mechanism of photosynthetic water oxidation. *Phys. Chem. Chem. Phys.* 6: 4754-4763.
7. McEvoy JP and Foord JS (2005) Direct electrochemistry of blue copper proteins at boron-doped diamond electrodes. *Electrochim. Acta* 50: 2933-2941.
8. McEvoy JP, Gascon JA, Batista VS and Brudvig GW (2005) The mechanism of photosynthetic water splitting. *Photochem. Photobiol. Sci.* 4: 940-949. PMID: 16307106

9. McEvoy JP and Brudvig GW (2006) Water-Splitting Chemistry of Photosystem II. *Chem. Rev.* 106: 4455-4483. PMID: 17091926
10. Sproviero EM, Gascon JA, McEvoy JP, Brudvig GW and Batista VS (2006) Characterization of synthetic oxomanganese complexes and the inorganic core of the O_2-evolving complex in photosystem II: Evaluation of the DFT/B3LYP level of theory. *J. Inorg. Biochem.* 100: 786-800. PMID: 16510187
11. Sproviero EM, Gascon JA, McEvoy JP, Brudvig GW and Batista VS (2006) QM/MM models of the O_2-evolving complex of photosystem II. *J. Chem. Theory Comput.* 2: 1119-1134.
12. Sproviero EM, Gascon JA, McEvoy JP, Brudvig GW and Batista VS (2007) Quantum mechanics / molecular mechanics structural models of the oxygen-evolving complex of photosystem II. *Curr. Opp. Struct. Biol.* 17: 173-180. PMID: 17395452
13. Sproviero EM, Shinopoulos K, Gascon JA, McEvoy JP, Brudvig GW and Batista VS (2008) QM/MM computational studies of substrate water binding to the oxygen-evolving centre of photosystem II. *Philos. T. Roy. Soc. B* 363: 1149-1156. PMID: 17971333
14. Sproviero EM, Gascon JA, McEvoy JP, Brudvig GW and Batista VS (2008) Quantum mechanics / molecular mechanics study of the catalytic cycle of water splitting in photosystem II. *J. Am. Chem. Soc.* 130: 3428-3442. PMID: 18290643
15. Sproviero EM, Gascon JA, McEvoy JP, Brudvig GW and Batista VS (2008) Computational studies of the O_2-evolving complex of photosystem II and biomimetic oxomanganese complexes. *Coord. Chem. Rev.* 252: 395-415. PMID: 19190716
16. Sproviero EM, Gascon JA, McEvoy JP, Brudvig GW and Batista VS (2008) A model of the oxygen-evolving center of photosystem II predicted by structural refinement based on EXAFS simulations. *J. Am. Chem. Soc.* 130: 6728-6730. PMID: 18457397
17. Sproviero EM, McEvoy JP, Gascon JA, Brudvig GW and Batista VS (2008) Computational insights into the O_2-evolving complex of photosystem II. *Photosynth. Res.* 97: 91-114. PMID: 18483777
18. McEvoy JP and Brudvig GW (2008) Redox reactions of the non-heme iron in photosystem II: An EPR spectroscopic study. *Biochemistry* 47: 13394-13403. PMID: 19053286

C. Research Support.

Ongoing Research Support

Research Corporation, Cottrell College Science Award (2008-2009)
"Direct electrochemical investigations of photosystem II"
Project goals: To establish direct electrical contact with photosystem II, and to initiate voltammetric study of photosystem II redox reactions.
Role: PI

Regis SPARC grant (2008-2009)
For halogen lamp accessories.
Role: PI

Regis Faculty Development Committee Summer Research grant (2009)
For consumables.
Role: PI

Completed Research Support

Regis Start-Up Package (2006-2008)
For equipment, consumables.
Role: PI

Regis SPARC grant (2006-2008)
For dissolved oxygen monitor and PC.
Role: PI

Regis Faculty Development Committee grants (2007-2009)
Travel grants (2007, 2009): travel to professional conferences.
Small grant (2008): towards Newport Oriel halogen lamp.
Role: PI

Regis SPARC grants to undergraduate student (2009)
Awarded to Claire Birkenheuer for purchase of gold electrode.
Role: PI

D. Experience supervising research students.

Experience as a post-doctoral researcher

2002-2003 Day-to-day supervision of an undergraduate research student in the laboratory of John Foord, Oxford University. This year-long project, examining the electrochemistry and surface properties of boron-doped diamond, culminated in the student writing an examined thesis.

2003-2006 Day-to-day supervision of several undergraduate 'rotation' research students in the laboratory of Gary Brudvig, Yale University. These short-term projects involved the purification of photosystem II (PSII) from spinach and the cyanobacterium *Synechocystis*; assaying PSII for O_2-evolving capability; and studying PSII using electron paramagnetic resonance (EPR) spectroscopy.

Experience as a faculty member at Regis University

2006-2007 Supervision of an undergraduate research student, Slade Bigelow, in setting up my lab and purifying PSII from spinach. Bigelow is continuing his education at Osteopathic School. The Science Building was remodeled in 2007, preventing laboratory activity during the spring and summer.

2008 Supervision of two undergraduate research students (Zach Owens and Claire Birkenheuer) for 10 weeks full-time over the summer of 2008. These students began my studies of the direct electrochemistry of PSII and were paid in the summer from my Cottrell College award money. They produced most of the results described in the 'Preliminary Studies' section of the research plan. Owens wrote up his work as an examined Honors thesis and presented it orally, while Birkenheuer wrote a report for my records and presented it at a Regis University poster session. Both students plan to go to graduate school; Birkenheuer has been accepted into the PhD program at Colorado State University to study virology.

Supervision of an undergraduate research student (John Otten) in the Fall 08 semester, part-time for credit. Otten obtained the fast-scan cyclic voltammetric data described in the 'Preliminary Studies' section of the research plan, wrote a research report for my records, and plans to go to graduate school.

2009 Supervision of two undergraduate research students (Gabriel Gallegos and Matthew Drake) this summer (2009) for 10 weeks full-time. They are being paid from my Cottrell College award money and are learning how to grow *Synechocystis* and purify His-tagged PSII from it; synthesizing some PSII inhibitors designed to tether the enzyme to a gold electrode; and continuing the voltammetric studies of His-tagged PSII on Ni^{2+}-modified gold electrodes begun by Owens last summer. I am also supervising a third, part-time volunteer student this summer: Sean Moroze is beginning some electroanalytical studies of reactive oxygen species. All three students plan to enter graduate or medical school.

Supervision of an undergraduate research student (Crystal Kay) in the Spring 09 semester, part-time for credit. Kay began the inhibitor work being continued this summer and plans to go to medical school.

Collaborations between departments and programs at Regis University

As part of a small undergraduate college (approx. 1300 students; 6 faculty in Biology; 5 each in Chemistry (Biochemistry), Psychology (Neuroscience), and Mathematics; and 3 in Physics and Computer Science), we collaborate frequently with our colleagues in other departments, and share specialized equipment and materials as necessary. In particular, my students make use of centrifuges, incubators and a -70 °C freezer in the biology department.

During the Fall 09 semester, Owens began growing *Synechocystis* and learned how to purify His-tagged PSII from the CP47 His-tagged strain of the cyanobacterium (kindly donated by Gary Brudvig.) This work was performed as a laboratory project under the co-supervision of Joan Betz of the Regis University Biology Department, who appears as a collaborator in this grant (see attached letter).