

Michael Cooney

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(a) Professional Preparation

University of California, San Diego	Chemical Engineering	B.S.	1986
University of California, Davis	Chemical Engineering	M.S.	1988
University of California, Davis	Chemical Engineering	Ph.D.	1992
University of California, Davis	Food Science	Postdoc	1992
Swiss Federal Institute of Technology	Biochemical Engineering	Postdoc	1994-1995
University of Queensland	Biochemical Engineering	Postdoc	1996-1997

(b) Appointments

Researcher	2016 - present
Associate Researcher, Hawaii Natural Energy Institute	2004 - 2016
Associate Professor, Hawaii Natural energy Institute	2002–2003
Associate Professor, Dept. of Ocean and Resource Engineering	2001
Lecturer, School of Engineering, Murdoch University (Australia)	1998-2001

(c) Products / Publications

(i) Five Most Relevant Products

2019 Cooney[□], M. J., Lamichhane, K. and K. Rong. *Cross comparative analysis of liquid phase anaerobic digesters*. Journal of Water Process Engineering. Journal of Water Process Engineering. Volume 29, June, 100765.

2017 Lamichhane, K., Furukawa, D., and M. J. Cooney[□]. *Co-digestion of glycerol with municipal wastewater*. Journal of Chemical Engineering & Process Technology. **In Press**.

2017 Lamichhane, K, Lewis, K., Rong, K., Babcock, R., and M. J. Cooney[□]. SHORT COMMUNICATION: *Treatment of high strength acidic wastewater using passive pH control*. Journal of Water Process Engineering. **18**:198-201.

2017 Lamichhane, K., Furukawa, D., and M. J. Cooney[□]. *Co-digestion of glycerol with municipal wastewater*. Journal of Chemical Engineering & Process Technology. **3**(1): 1034.

2016 Cooney[□], M. J., D. Harris, K. Lewis, and Tao Yan. *Biochar as a packing material in anaerobic digesters for rapid start up at demonstration scale*. Journal of Water Process Engineering. 9:e7-e13.

(ii) Five Other Significant Products (from a list of 70 peer-reviewed articles and book chapters)

2016 Postacchini, L., Lamichhane, K., Furukawa, D., Babcock Jr, R. W., Ciarapica F.E. and M. J. Cooney. *Life Cycle Analysis of three methods to treat primary clarifier effluent*. Water Science and Technology. 73(10):2353-2360.

2015 He X., Zhang, Q. **Cooney, M. J.** and Tao. Yan[□]. *Biodegradation of Fat, Oil and Grease (FOG) Deposits under Various Redox Conditions Relevant to Sewer Environment*. Applied Microbiology and Biotechnology. 6;99(14):6059-6068.

2014. Cooney[□], M. J., D. Harris, K. Lewis, and Tao Yan. *Biochar as a packing material in anaerobic digesters for rapid start up at demonstration scale*. Journal of Water Process Engineering. Available on-line. doi:10.1016/j.jwpe.2014.12.004.

2014 Lopez, R., Higgins, S., Pagaling, E., Yan, T., and **M. J. Cooney[□]**. *High rate anaerobic digestion of wastewater separated from grease trap*. Journal of Renewable Energy, 62:234-242.

2013 Higgins, S., Lopez, R., Pagaling, E., Yan, T., and **M. J. Cooney[□]**. *Towards a hybrid anaerobic digester-microbial fuel cell integrated energy recovery system: An overview of the development of an electrogenic biofilm*. Enzyme and Microbial Technology. 52(6-7): 344-351.

(d) Synergistic Activities

1. Two years (10/1/17 – 9/31/19). Project contributor on Strategic Monitoring And Resilience Training in the Ala Wai Watershed – SMART Ala Wai. SMART Ala Wai will initiate a student-led water quality observation and sampling network in the Ala Wai watershed, estuary, and adjoining reef (the ahupua'a). The goal help inform restoration and resilience efforts in the ahupua'a while providing first-hand undergraduate and graduate education and research experiences with meaningful, applied outcomes relevant to the local community. My principle role is on integration the project to undergraduate education.

2. Two years (7/1/11 – 6/30/2013) PI on large \$999,490 multi-faculty sustainability grant on Water, Energy, and Soil Sustainability (WESS) awarded by the University of Hawaii at Manoa program on sustainability. This program funded fundamental research investigating biochar as a soil amendment, packing material in anaerobic digesters, and carbonization of sewage sludge. Over 8 faculty from Departments of Tropic Plant and Soil Science, Department of Civil and Environmental Engineering, Global Environmental Science program, Hawaii Natural Energy Institute, College of Business were funded and participated in the project. Major outcomes included major demonstrations of anaerobic digesters (600 gallon and 6000 gallon) in industry as well as an 1800 tree jatropa farm that is still growing. ***My role as PI of the WESS sustainability project established long-term and on-going research relationships (many leading to publications) with several of the faculty included on this EPSCoR proposal (Deenik, Ogoshi, Babcock, Okimoto and Guidry).***

3. Five years Co-PI (5/1/06 -10/31/2011) on AFOSR MURI award title Fundamentals and Bioengineering of Enzyme Fuel Cells (**Plamen Atanassov PI**). Program included six universities and produced over 100 peer reviewed manuscripts of which the PI was author of 21, including lead author on one of the programs 2 four university manuscripts. The PI (Cooney) and Co-PI (Atanassov) of this EPSCoR co-author 7 collaborative papers. ***This MURI established a long-term and highly successful collaborative research relationship between the PI (Cooney) and Co-PI (Atanassov) that is still on-going and one that will serve as the basis for a highly successful partnership for this EPSCoR.***

4. Four years leading two large scale (600 gallon and 6000 gallon) demonstration scale applications of wastewater treatment technologies in industry and under review of Advisory Boards. Advisory Board members included engineers and staff scientists from AECOM, Hawaii American Water, Pacific Biodiesel, Aqua Engineers. One project (6000 gallon) is still ongoing. ***These interactions have established the basis for the recruitment and establishment of an Advisory Board for this MURI that is most interactive, collaborative, and populated with appropriate professionals from industry, state government, and regulatory agencies.***

5. Session Co-Organizer at the 240th American Chemical Society Spring 2010 Meeting in Boston, MA. Session title: Chemistry, Production, and Use of Green Fuels. ***This activity brought into play some of the initial ideas that lead to the experimental platform now in place of the lab of the PI (Cooney), and impressed upon the PI the importance of water reuse for food and energy production.***

(e) Collaborators and Other Affiliations

Collaborators and Co-Editors: Plamen Atanassov (University of New Mexico), Roger Babcock (University of Hawaii), Tao Yan (University of Hawaii), Richard Ogoshi (University of Hawaii), Shelley Minter (University of Utah), Krishna Lamincahne (University of Hawaii), David Harris (Pacific Biodiesel), Scott Higgins (University of Hawaii), Carolin Lau (Roche Diagnostics), Georgianna Martin (Hawaii Pacific University), Catherine Rong (University of Hawaii), William Lewis (University of Hawaii), Eulyn Pagalin (University of Hawaii), Julia Wang (University of Hawaii), Ryan Lopez (University of New Mexico); Sedef Maloy (University of Hawaii); Orianna Bretschger (Craig Venter Institute); Ken Neelson (USC); Adrianna Chueng (Brown and Caldwell); Daniel Foerster (University of Mannheim)

[20 Collaborators and Co-Editors]

Graduate Advisors and Postdoctoral Sponsors: Professor Karin McDonald (Professor, Department of Chemical Engineering, UC Davis), Professor Charles Shoemaker (Professor, Department of Food Science, University of California, Davis), Professor Urs von Stockar (Professor, Department of Chemical and Biochemical Engineering, Swiss Federal Institute of Technology, Switzerland), Dr. Ian Marison (Associate Professor, Department of Chemical and Biochemical Engineering, Swiss Federal Institute of Technology, Switzerland), Professor Michael Johns (Assoc. Prof. University of Queensland)

[1 Graduate Advisor and 4 Postdoctoral Sponsors].

Thesis Advisor and Postgraduate-Scholar Sponsor: Aaron King (University of Hawaii), Sedef Maloy (University of Hawaii), Kristina Mojica (Koninklijk Nederlands Instituut voor Onderzoek der Zee), Wayne Johnston (University of Queensland), Nicole Radfielder (University of Mannheim) Jana Petermann (University of Mannheim), Daniel Foerster, (University of Mannheim), Judith Denery (Scripps Institute of Oceanography), Ryan Lopez (University of New Mexico), William Lewis (University of Hawaii), Melissa Abrihimovac (University of Hawaii), Dr. Krishna Lamichhane (University of Hawaii), Dr. Godwin Severa (University of Hawaii), Dr. Scott Higgins (University of Hawaii), Dr. Georgianna Martin (Hawaii Pacific University), Dr. Carolin Lau (Roche Diagnostics), Dr. Anastassija Konash (Universal Biosensors), Dr. Chris Cannizzaro (U.S. Department of State), and Dr. Wayne Johnston (University of Queensland)
[11 Thesis Advisees and 8 Postgraduate-Scholars].