

# Learning Through Research @ CSU Monterey Bay

October 5, 2017

CAL STATE MONTEREY BAY  
Extraordinary Opportunity.



[csumb.edu](http://csumb.edu)

# Faculty Research with Students— a selection

- Christine Valdez, Psychology
- *Psychophysiological Functioning in Psychopathology and*
- *CHATT to end Gang Violence*
- 3 undergraduates engaged in each project



- Cheryl Logan, Marine Science
- *Ocean Acidification Collaborative Research: RUI: Multiple Stressor Effects of Ocean Acidification and Hypoxia on Behavior, Physiology and Gene Expression of Temperate Reef Fishes*
- 46 undergraduates & graduate students



- Corey Garza, Marine Science
- *Ocean Science Research Experience for Undergraduates* (among other projects)
- 1 graduate student and 3 undergraduate students from CSUMB and 10 other students, including 1 from Hartnell and 1 from Cabrillo



- Sathya Narayanan and Young Joon Byun,  
Computer Science
- *Wireless assessments in California*
- 4 undergraduates and 1 grad student  
currently, many others in previous years



- Lisa Leininger and Maria Bellumori,  
Kinesiology
- *Employee Participation in Worksite Health  
Promotion Programs*
- *Reaction Times in Athletes*
- Total of 9 undergraduates participating



# Dr. John Goeltz

Assistant Professor  
School of Natural Sciences



California State University  
**MONTEREY BAY**  
Extraordinary Opportunity



# Goeltz Lab

@ California State  
University, Monterey Bay

## Applied electrochemistry

- *Battery overcharge protection*: faster charging, intrinsically safe
- *Renewable fuels*: 24-hour solar hydrogen
- *Chemistry of Water*: hydroxide-selective electrodes – pOH
- *Undergraduate Electrochem Educ*

20 undergraduates trained to date

60% female, 50% under-represented

***Undergrads are the new grad students***



California State University  
**MONTEREY BAY**  
Extraordinary Opportunity



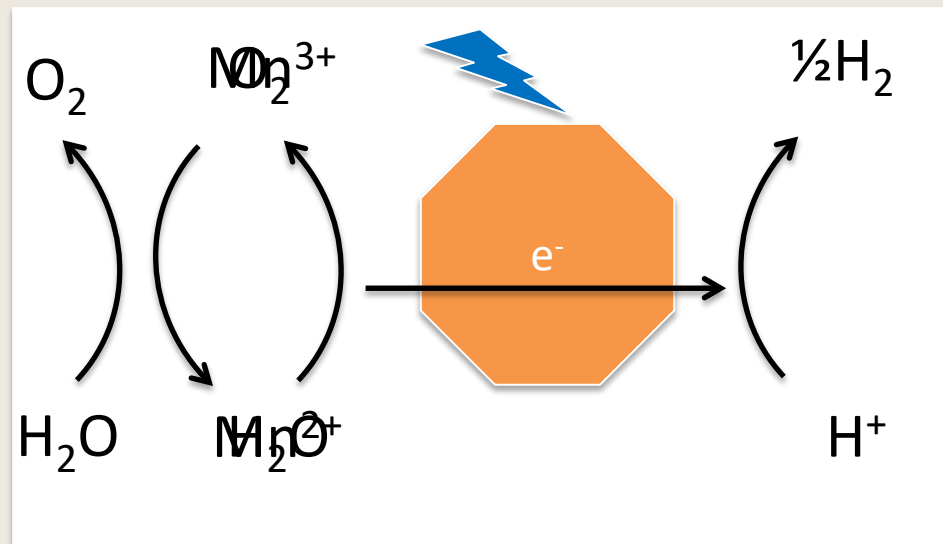
# Energy Conversion and Storage

## 24-Hour Solar H<sub>2</sub>

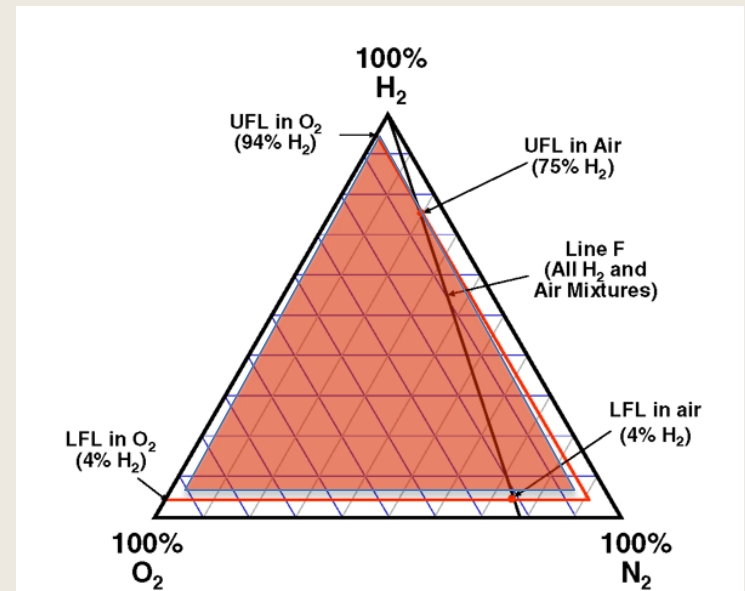
- Plants don't photosynthesize at night; why should we?

## Benefits of Spatially Deferred O<sub>2</sub> Evolution

- Efficiency
- Avoid "triangle of explosion"

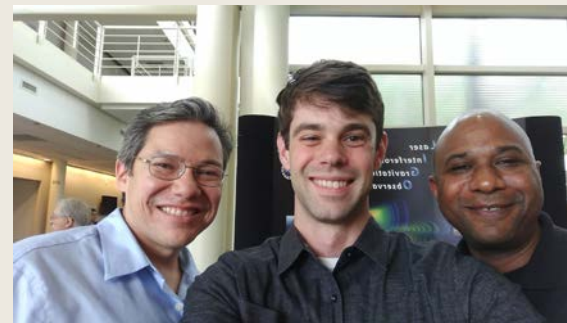


- No explosive gas mixture; O<sub>2</sub> generation is deferred

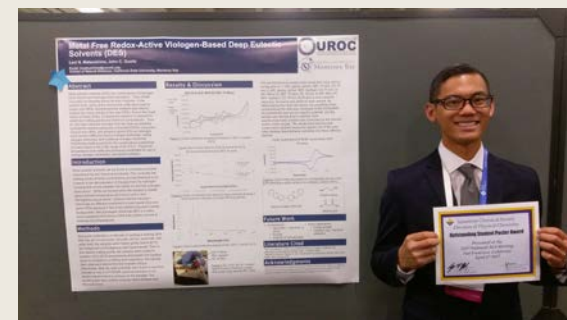


# The Extended Group

- 20 diverse students trained to date, many LSAMP and UROC supported
- Undergrad winner of physical chem poster award in **graduate** poster session at Am Chem Soc
- LSAMP-supported student co-inventor on prov patent app and first author of two submitted papers (and counting...)
- Two students sent to chem labs in France via NSF iREU



Corey Gray (L) and William Parker (R) of LIGO



Levi Matsushima at ACS

Acknowledgements: Kyler Aqueche, Olivia Boisen, Lauren Castanon, Robert Castro, Tim Paulson, Tiffany Rivera, Bryan Sierra-Rivera, Lindsay Shorter, Parker Smith; Sharon Anderson, Cindy Lopez, Christine Limesand, Joy Nguyen, Crystal Chavez, UROC: Buck Banks, Holly Unruh, Carla Fresquez, et al.



California State University  
**MONTEREY BAY**  
Extraordinary Opportunity

# Research Programs By the Numbers



California State University  
**MONTEREY BAY**  
Extraordinary Opportunity

# Undergraduate Independent Research by the Numbers

- UROC founded in 2009, since its inception, there have been 217 UROC Scholars
- 62% female (overall CSUMB 63% )
- 51% first-generation (overall CSUMB 55%)
- 43% low-income (overall CSUMB 35%)
- 45% URM (46% overall CSUMB)



- 82% of UROC alumni who are in PhD programs, and
  - 72% of UROC alumni who are in Master's Programs
- .....are from traditionally underrepresented groups (105)



# McNair Scholars

- Federal Program for first-generation and traditionally underrepresented students, 105 participants since 2009.
- 69% female
- 83% first-generation
- 77% low-income
- 71% URM





- 60% of CSUMB McNair alumni attend graduate school
- 74% of UROC students graduate in 6 years or less



# Questions Welcome

CAL STATE MONTEREY BAY  
Extraordinary Opportunity.



[csumb.edu](http://csumb.edu)