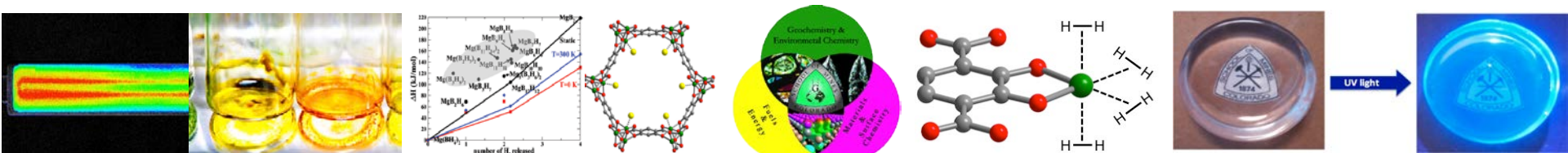


Advancing Cross-Disciplinary and Innovative Research Initiatives

Board of Trustees Meeting
February 9th, 2018
Tom Gennett
Chemistry Department



Why are Cross Disciplinary Approaches Important

1. More complex research problems require more diversified approaches
 - Synergy theory and experiment
 - Validate theories
 - Expertise in materials synthesis and characterization to advance project
 - New advanced materials need new advanced characterization techniques
2. Applied and basic research initiatives.
 - Appropriate mix of projects
 - Ability to Pivot
 - Diverse Departments
 - Accept your limitations
 - Single PI, Multiple PI, Multiple Institute
3. Maximize opportunities for success
 - Plan projects across Departments and Institutions

Chemistry Initiatives

How did Chemistry go from <\$2M to >\$7.5M research expenditures in \cong 6 years

Strategic design

Consensus was reached on how to change the paradigm

Remove internal barriers to success

Remove barriers for collaboration

Directed Hires/Smart Hires

Recruit senior people with excellent national/international reputations

Diversified hires (discipline and culture) to forward initiatives and fill needs

Nuclear Program, Biochemistry, Materials, Energy

Change internal perception

Change external perception

BE PATIENT

Chemistry Actions

LARGE MULTIDISCIPLINARY ACTIVITIES

Successes

-Renewable Energy Materials Research Science and Engineering Center (REMRSEC)

Prof. Ryan Richards Director 2016 (Craig Taylor – original PI)

NSF Funded MRSEC, Multiple Department Initiative (\$20M/4 years)

High visibility program, Summer REU, K-12 Outreach programs

-Hydrogen Materials Advanced Research Consortium (HyMARC)

Prof. Tom Gennett co-director (\$36M/6 years)

DOE-FCTO funded, Multi-Institution Initiative

High visibility program, Applied hydrogen initiative research program

Leverage:

Energy Frontier Research Centers (\$16M/4 years)

Involved in 6 submissions, 1 requested with Chemistry as lead institution

NSF-MRI

DOE-AMO (with CBE)

DOE-NETL (with CBE)

Result:

Enhanced visibility, improved reputation, increased funding

Chemistry Actions

Active/Planned Activities (non-inclusive)

Across Departments (Active, Planned)

ASPPRC - Steel Research Center, NUSEC - Nuclear Sci & Eng Center, CIMSE, CERA-Environmental Risk Assessments, Nuclear Science and Engineering Center, Materials Science cross disciplinary program.

CBE, ME, CH, MME to develop a Nationally recognized joint gas sorption facility with NREL

Across Universities: (Active)

Stanford, MIT, UC Berkeley, UC Davis, UCSD, WSU, UNM, RIT, UC Boulder, CSU, UNC, UT Austin, U. Wyoming, Max Planck, Northwestern, Univ of Queensland, Texas A&M, Arizona State, UC Santa Barbara, Johns Hopkins, Tufts, Cal. Tech., Penn St., Technische Universität München.

Industry etc.

Exxon Mobil, DOE Tech Team (FORD, GM, 3M), Forge Nano, Cambrios, Colorado Energy Research Council, Colorado Office of Economic Development & International Trade (COEDIT), NIH, DOD, DOE, NSF, OFF, NETL, ONR, S.D. Bechtel, Jr. Foundation, U.S. Department of Homeland Security, U.S. Nuclear Regulatory Commission.

National Laboratories (all active and expanding)

NREL (JA's, etc.); LANL, PNNL, ORNL, LLNL, LBNL, ORNL, INL, ANL, SNL, SRNL, NIST*, USGS, NOAA, SLAC*

Misc.

Journal Editors/Associate Editors, Fellows of the American Chemical Society, IEA-HIA expert, NSF-REU

Chemistry Future Actions

NEEDS

Strong vibrant graduate program

- i. Competitive stipends/fellowships
- ii. TA budget
- iii. Scholarships/outside donors

State of the Art laboratory space

- i. Attracts better faculty
- ii. Retains best faculty

Strong Teaching Faculty

Excellent Support Staff

More recognition of our accomplishments internally and externally.

THREATS

Funding opportunities

Excellent faculty retention

Stagnation

WHAT ARE WE DOING:

- Teaming with Nationally Recognized experts at top 20 Institutions. (EFRCs and EMNs)
- Directed hires with a unique understanding of National Laboratory and Funding Agencies.
- Proactive planning for the next 5 years
- Active newsletters for alumni and recruiting
- Early and effective recruiting of new students
- Working with foundation for donations towards Chair positions and/or scholarships (grad/undergrad)
- Cross inter- and intra- disciplinary efforts

CHEMISTRY

