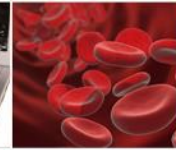




WHERE DISCOVERIES BEGIN



CBET:

Activities and Funding Opportunities
in

Sustainable Manufacturing

Bruce Hamilton

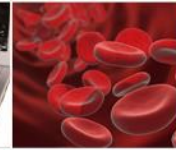
**Director of the Environmental Sustainability
Program**

**CBET Division / Engineering Directorate
National Science Foundation**

August 2015

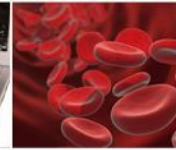


WHERE DISCOVERIES BEGIN



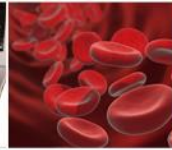
Two CBET Programs are Active in Sustainable Manufacturing:

- **Environmental Sustainability (Env. Sus.): Bruce Hamilton**
- **Process and Reaction Engineering (PRE): Maria Burka**



CBET Program Grant Sizes

- **Typical unsolicited proposal grant size:**
Up to \$300K total for up to 3 years
- **There are some exceptions:** e.g. SusChEM,
U.S. - China, GOALI,...
- **CAREER awards:** **\$500K total for 5 years**



CBET Proposal Submission Deadlines

- **Unsolicited Proposals:**

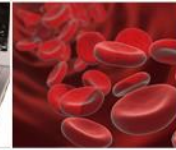
October 20, 2015

- **CAREER Proposals:**

July 21, 2016



WHERE DISCOVERIES BEGIN

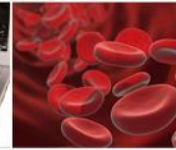


Ongoing CBET Grants: Sustainable Manufacturing

EXAMPLES



WHERE DISCOVERIES BEGIN



Ongoing CBET Grants: Examples

1140000

RCN-SEES Grant on Sustainable Manufacturing

PI = Yinlun Huang

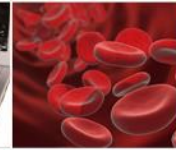
**“RCN-SEES: Sustainable Manufacturing
Advances in Research and Technology
(SMART) Coordination Network”**

\$722K

Co-funded by ENG (CBET, CMMI), MPS (CHE), and CISE (ACI)



WHERE DISCOVERIES BEGIN



Ongoing CBET Grants: Examples (continued)

1321470

NSF's Membership in SMLC

(SMART Manufacturing Leadership Coalition)

PI = Jim Davis

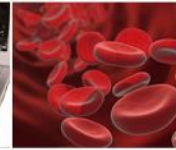
“SMART Manufacturing Advancement”

\$30K

Co-funded by Env. Sus. and PRE (CBET)



WHERE DISCOVERIES BEGIN



Example Ongoing CBET Research Grants: Sustainable Manufacturing (cont'd)

1236203 (CBET Env. Sus. Unsolicited)

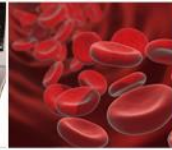
**“Gas Purification with Recovery and Reuse to
Achieve More Sustainable and Competitive
Manufacturing”**

PI = Mark Rood (UIUC)

\$306K (Env. Sus.)



WHERE DISCOVERIES BEGIN



Example Ongoing CBET Research Grants: Sustainable Manufacturing (continued)

Collaborative: 1437965, 1437595, 1437688

“SusChEM: Enabling the Biorefinery: Isolation, Fractionation, and Transformation of Bio-based Feedstocks into Fuels and Chemical Products”

Julie Zimmerman (Yale): \$201K

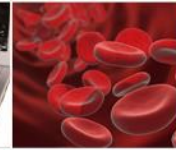
Eric Beckman (U. Pittsburgh): \$163K

Lindsay Soh (Lafayette College): \$101K

Co-funded by CBET Env. Sus., PRE, and Energy for Sus.



WHERE DISCOVERIES BEGIN



Example Ongoing CBET Research Grants: Sustainable Manufacturing (continued)

Joint NSF- NSFC Project

1510531

U.S.- China: Systems-Based Approaches for Sustainable Steel Manufacturing

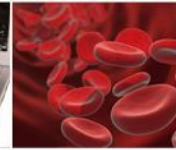
PI = Bert Bras (Georgia Tech)

\$500K from NSF (another \$500K from NSFC for China)

Co-funded by CBET Env. Sus. and OISE GVF



WHERE DISCOVERIES BEGIN



Example Ongoing CBET Research Grants: Sustainable Manufacturing (continued)

**Joint NSF- NSFC Project
1512217**

**“Advancing Environmental Sustainability
through Innovative Design and Operation
of Digital Manufacturing Equipment”**

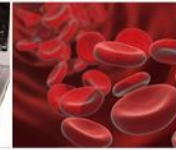
**PI/coPIs = John Sutherland, Karthik Ramani, Fu Zhao
(Purdue)**

\$500K from NSF (another \$500K from NSFC for China)

Co-funded by CBET Env. Sus., CMMI, and OISE GVF



WHERE DISCOVERIES BEGIN



Example Ongoing CBET Research Grants: Sustainable Manufacturing (continued)

Collaborative: 1511667 and 1511399

**“GOALI: Sustainable phosphorus
recovery from agricultural waste”**

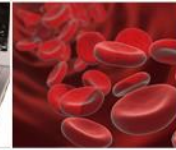
Lee Blaney (UMBC): \$220K

Sukalyan Sengupta (U. Mass - Dartmouth): \$132K

Co-funded by CBET Env. Sus. and GOALI



WHERE DISCOVERIES BEGIN



Example Ongoing CBET Forum Grants: Sustainable Manufacturing

1548385

**“Value Creation through Sustainable
Manufacturing: September 24 and
25, 2015; Lexington, KY”**

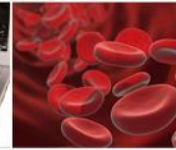
PI/coPIs = Fazleena Badurdeen, Jeffrey Seay

(University of Kentucky)

\$20K (CBET Env. Sus.)



WHERE DISCOVERIES BEGIN



Example Ongoing CBET Grant: Scalable Nano-Manufacturing (SNM)

1449337

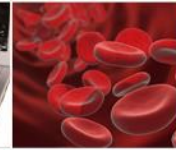
**“SNM: Scalable Manufacturing of
Nanostructured Membranes for
Fracking Wastewater Treatment”**

PI = Daeyeon Lee (U. Pennsylvania)

\$1.3 million (four years)



WHERE DISCOVERIES BEGIN



Example Ongoing CMMI Grant: Scalable Nano-Manufacturing (SNM)

1120329

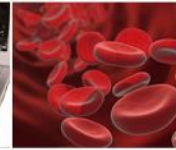
**“SNM: Designing and Integrating
LCA Methods for
Nanomanufacturing Scale-up”**

PI = Jacqueline Isaacs (Northeastern U.)

\$1.3 million



WHERE DISCOVERIES BEGIN



Questions?