

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

Welcome
CAP Executive Board
February 6, 2025

CAP Chair and Vice Chair



Magaly Drant

Vice President, Developer Productivity
ServiceNow



Shariqa Dowla

Director, Software Engineering
Cubic Transportation Systems

Welcome

UC San Diego

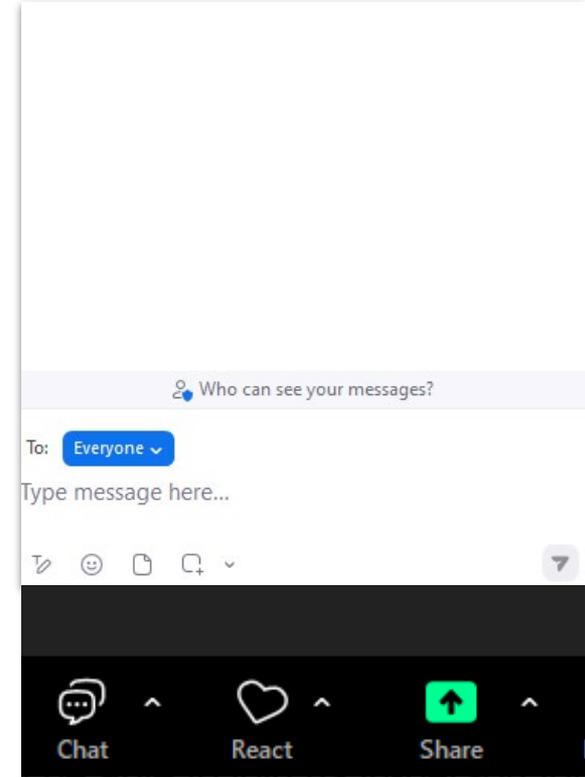
JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

Virtual Attendees

→ We will be recording this meeting

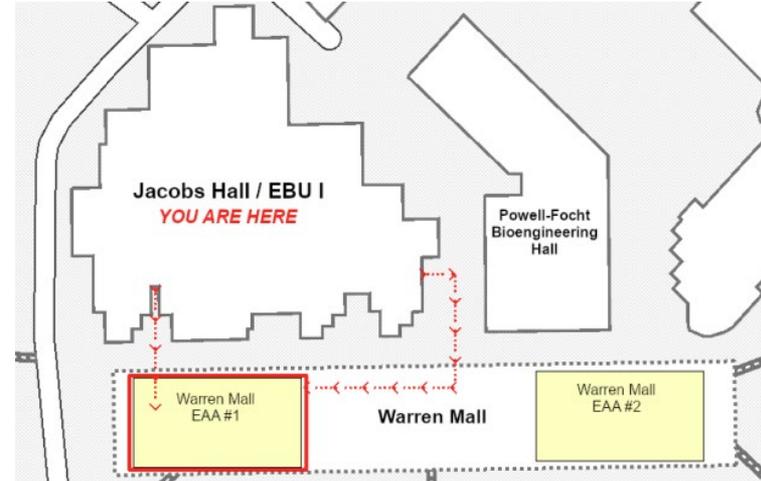
→ You will be muted

→ During the panel discussion Q&A, please use the chat box for your questions and inputs



Safety Protocols

- Please note the exit doors
- Evacuation area is the Warren Mall
- Find a UC San Diego staff or faculty



Agenda

5:00-5:05pm

CAP Executive Board Chairwoman Welcome

Magaly Drant

Vice President of Developer Productivity, ServiceNow

5:05-5:10pm

Student Organization Presentation

Biomedical Engineering Society

5:10-5:30pm

Dean's Report

Al Pisano

Dean, Jacobs School of Engineering; Special Adviser to the Chancellor

5:30-5:50pm

Carbon Utilization & Recycling Engines (CURE)

Bernhard Palsson, Professor, Bioengineering

Michael Burkart, Professor and Chair, Chemistry & Biochemistry

Jonathan Shurin, Professor, Ecology, Behavior & Evolution

Adam Feist, Research Scientist, Bioengineering

5:50-6:20pm

Faculty Panel & CAP Executive Input: Carbon Utilization & Recycling Engines (CURE)

6:20-6:30pm

CAP Business

Wil Dyer

Director, Corporate Affiliates Program

6:30pm

Adjournment

Welcome New CAP Partner

Genentech

A Member of the Roche Group

CAP Executive:

Scott Rosenthal

Executive Director

Head of Manufacturing Science
and Technology (MSAT)

Welcome Guests

BASF

FJSCALER

KYOCERA

NITTO

NOVARTIS

UNMANNED AEROSPACE

WINBOND



Shariqa Dowla

Director, Software Engineering
Cubic Transportation Systems

Welcome New Vice Chair

- **Director for Enterprise Software at Cubic Transportation Systems (CTS)**, which provides technology solutions for public transit companies across the world.
- Shariqa got her undergraduate degree from BITS Pilani (India). She is **passionate about the role of public transit** and its impact on sustainability in the future of our cities.
- Shariqa is a **mentor and advocate diversity in tech**, actively promoting initiatives that support the career development of women and underrepresented groups in STEM fields.
- As a proud mom of two current UC students, Shariqa is excited to **engage with UC San Diego's talented students and faculty** and drive potential research collaborations.

Welcome Biomedical Engineering Society



BMES

UC SAN DIEGO

BIOMEDICAL ENGINEERING SOCIETY

2024 - 2025

• Annika O'Rourke: Bioengineering '25

• CAP Meeting

• February 6, 2025



OFFICERS AND COMMITTEES

A grid of 18 hexagonal portraits of officers and committee members, each with their name and role. The portraits are arranged in a roughly circular pattern on the right side of the page. Each hexagon has a different colored border. The names and roles are listed below each portrait.

Annika Orourke President	Connor Uhre VP Internal	Janice Dang VP External
Ben Bridgelal Lab Expo	Donovan Moore VP Finance	Mayah Carlton Project Team
Emily Pan Translational Medicine Day	Pranav Chigullapalli Bioengineering Day	Mos Praytamornkul Project Team
Aiden Momtaz Lab Expo	Simon Joseph Outreach	Logan Li Bioengineering Day
Justin Liu Social	Nikaash Bahl Translational Medicine Day	Kate Reimold Outreach
Meghana Seemakurthy Social	Suraj Laddagiri Webmaster	Kaye Placio New Student Committee
		Alisa Kunimoto New Student Committee





Outreach 23-24





Translational Medicine

Translational Medicine is an **interdisciplinary branch of biomedical science** that seeks to “**translate**” research findings into **novel diagnostics, medicines, and policies** to ultimately **improve individual and public health**

- Martin Wehling





All About TMD!

Translational Medicine Day (TMD) Schedule: Wednesday, Feb. 19th, 2025 12PM - 5PM

- MD/PhD panel 12-1pm
- Networking Lunch 1-2pm
- Keynote Speaker 2-3pm
- Startups Panel 3-4pm
- Industry Demonstrations 4-5pm
- Closing & raffle 5pm



Interested in meeting students?



Passionate about student ideas?



Showcase your company!





Bioengineering Day

May 28, 2025

Largest Bioengineering event on campus with 400+ attendees

BE Day Includes:

- Senior-Design Project Showcase
- Keynote speech
- Industry demonstrations
- Networking lunch
- Final round of BMES Quizbowl!





Project Team

Student-led Project

- Students work with peers on a **medical device project** to gain technical experience
- Develop **mechanical, electrical, & software skills**
- Focusing on mentorship and hands-on opportunities for new students!

Project Cycles (Research)

- **Research opportunities** through a lab
- Wet lab and biotech skills
- Formal application process

**We welcome
industry projects!**



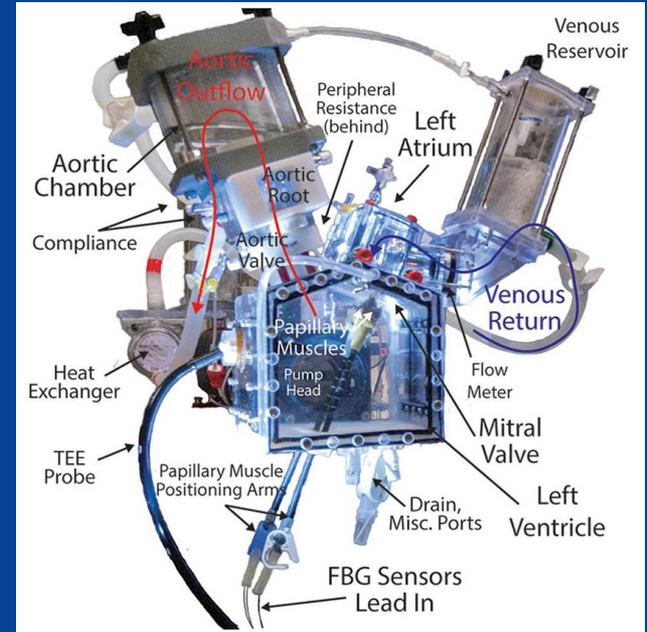


Heart Simulation Model

Objective: Create a model of a heart that simulates physiological pressures and flows

Skills involved: Robotics, controls, heart physiology, fluid dynamics, biomechanics, sensor interaction

Outcome: A prototype complete with flow/pressure sensors that emulates the conditions of the heart



THANK YOU



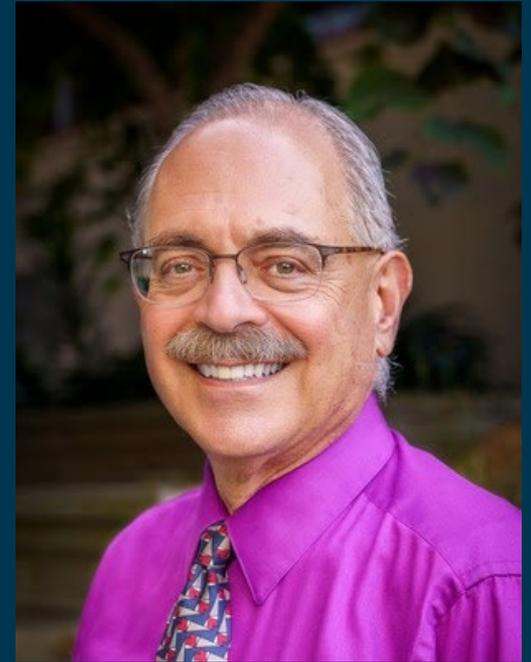
Sponsorship Package

bmes.ucsandiego@gmail.com

Dean's Report

Albert P. Pisano

Dean, Jacobs School of Engineering
Special Adviser to the Chancellor



Looking Back and Forging Ahead

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

AGENDA

1. Looking Back at 2024
2. Forging Ahead: 2025 and Beyond
3. Carbon Utilization & Recycling Engines (CURE)



Video: ALERTCalifornia cameras monitoring a fire in real time

ALERTCalifornia is a **multidisciplinary UC San Diego program** working to **understand natural disasters** and determine short and long-term impacts on people and the environment to inform management decisions.

**Jacobs School of Engineering
Principal Investigator:**

Falko Kuester

Professor

Computer Science & Engineering
Structural Engineering

<https://cameras.alertcalifornia.org/>

Looking Back at 2024

Greater Impact Across Campus

Renewed my appointment as **Dean of the Jacobs School**, and began my new role as **Special Adviser to the Chancellor** for Campus-wide Strategic Initiatives

Rising up the Rankings

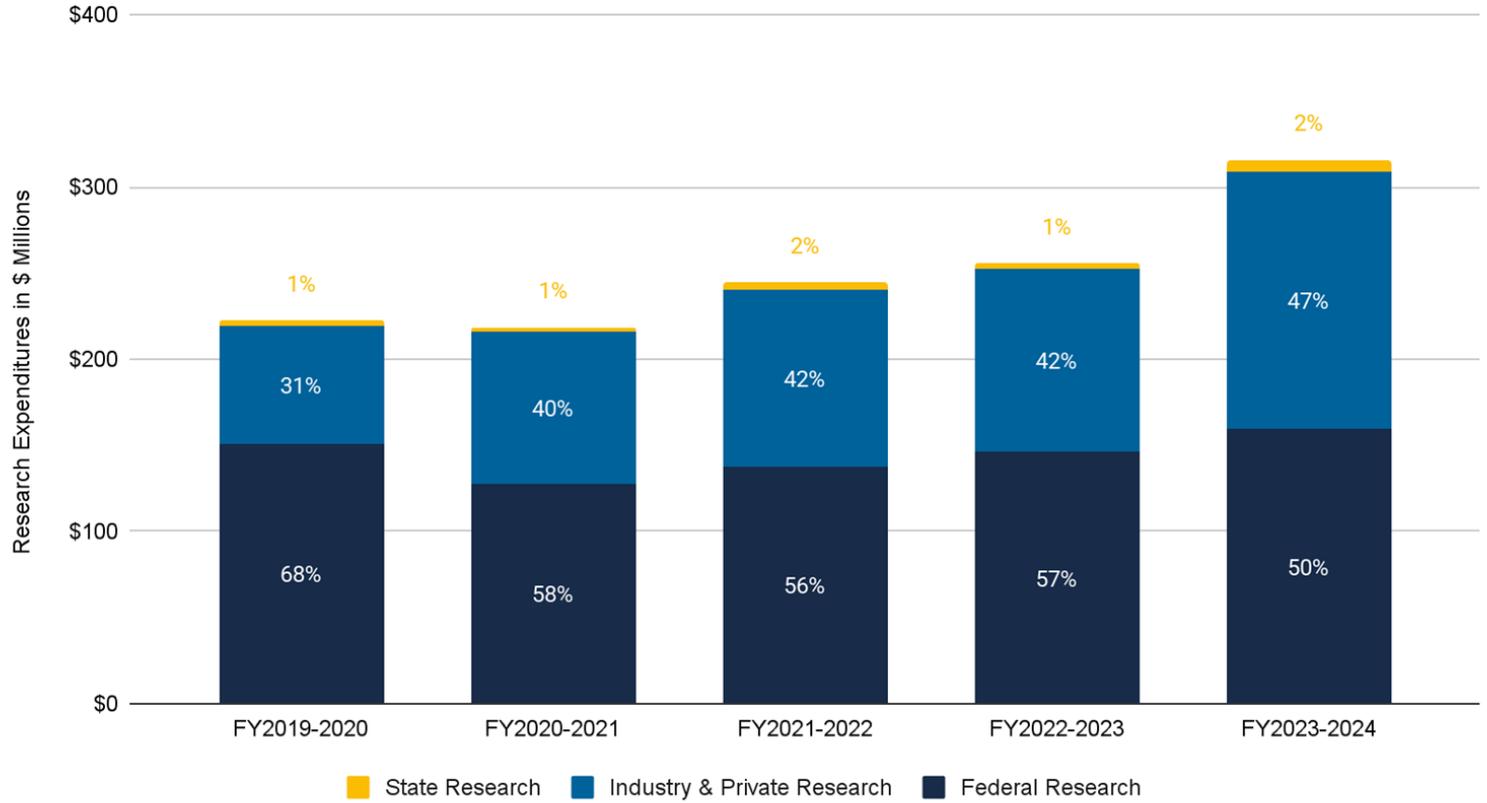


#11 Engineering School, #7 Public, and #1 Public Engineering School for Academic Paper Citations

Research Expenditures Breaks Records!

\$316M - up 23%, with 47% from industry & private funding

Jacobs School Research Expenditures



Banner Year for Fundraising



\$56.8M in philanthropic gifts to the Jacobs School, including:

★ **\$21M** department support

★ **\$6.4M** student support

★ **18** new endowed chairs

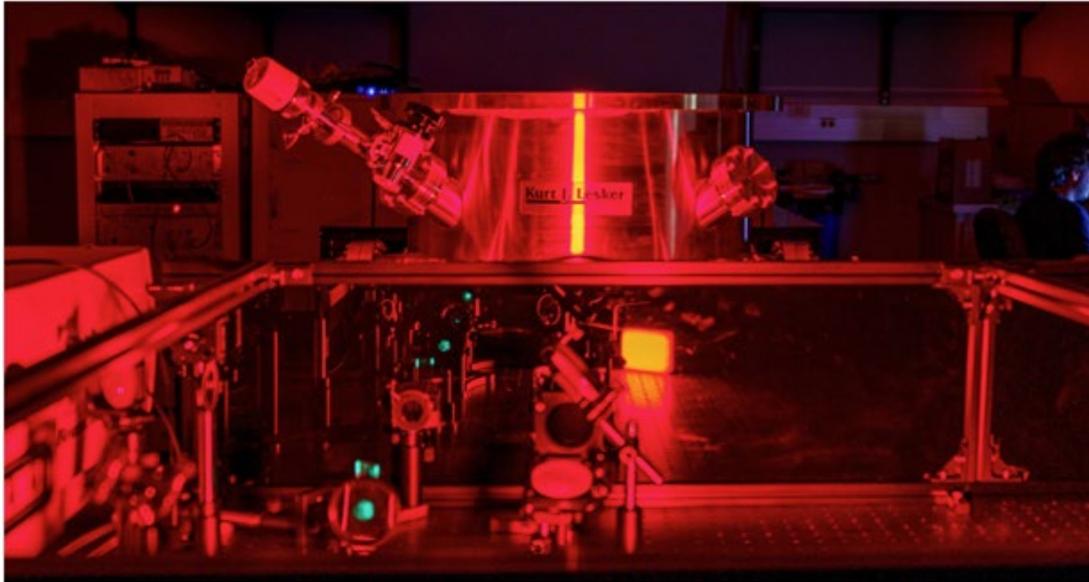


Welcomed 11 New Faculty

Approaching 300 total faculty; 180+ in the last 11 years



Taking the Lead towards Fusion Energy

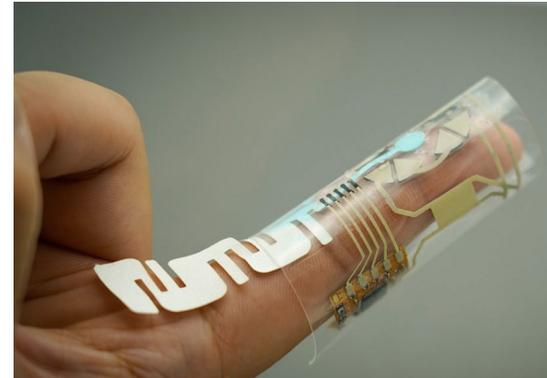
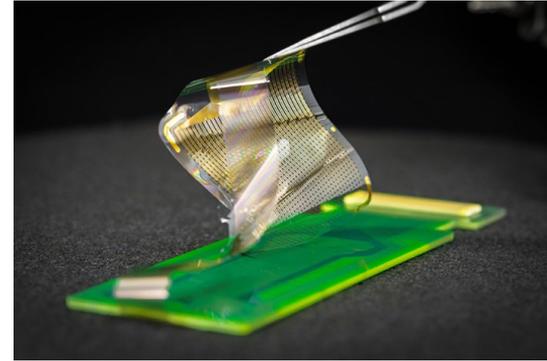


fei.ucsd.edu

Launched the **new Fusion Engineering Institute** to prioritize the **most difficult scientific and engineering challenges** holding back the promise of **safe, affordable clean energy** from fusion power plants.

Translating Engineering & Computer Science for the Public Good

- Brain recording device gets FDA approval for clinical trials
 - AI algorithms to determine newborn nursing abilities
 - Robots for helping people with mild cognitive impairment
 - Fingertip wrap to monitor sweat for health monitoring
- ...and many more!

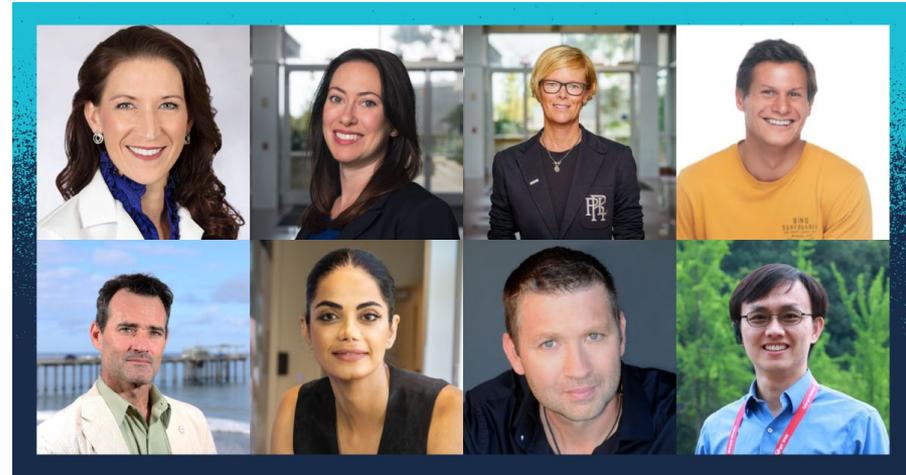


Forging Ahead: 2025 and Beyond

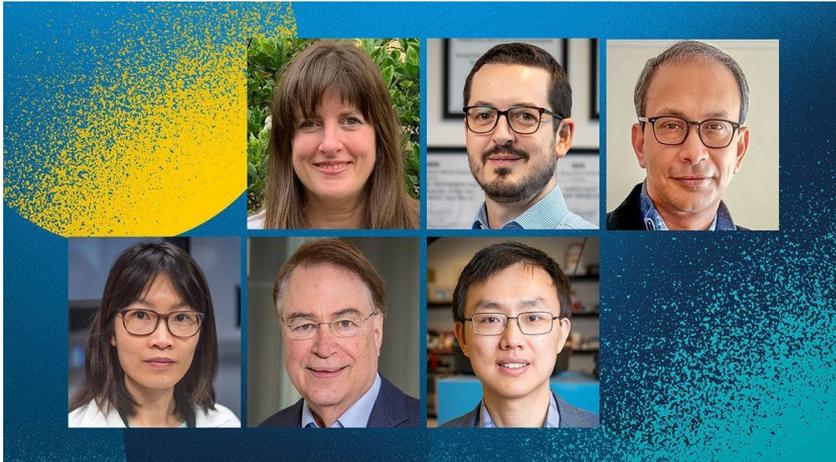
Faculty are Hitting their Stride in 2025...

Eight Jacobs School faculty received the **Accelerating Innovation to Market (AIM)** awards

AIM focuses on **expediting groundbreaking university technologies into market-ready solutions** through resources and funding.



...Receiving Global Recognition...



Six Jacobs School faculty named **IEEE Fellows** representing three engineering departments, highlighting the **interdisciplinary nature** of our research

...Accelerating Interdisciplinary Research

Six new Jacobs School faculty join the **Early Career Faculty Acceleration Program**, to help early-career faculty **build interdisciplinary research collaborations** to the point that they are **competitive for multi-year research funding**.



Meeting the Increasing Demand for Engineering Talent

- **9,600+** engineering students, largest in the west coast
 - Steady increase year-over-year
- **29% Female, 25% Underrepresented Minority**
 - Designated as a Minority-Serving Institution
 - Qualified for Hispanic-Serving Institution designation in 2027

Unanimous UC Regents Approval of Fusion Engineering



UC Regents approved creation of **UC Pacific Crest Fusion**, which is a Special Purpose Entity to help ensure that the State of California, and the US overall, emerges as the leader in practical fusion energy.

UC San Diego, and its **newly established Fusion Engineering Institute**, will lead efforts to organize the research and education as well as workforce development areas within UC Pacific Crest Fusion.

Our 5 Strategic Programs

1. The Institute for Healthcare Engineering
2. **TODAY: Carbon Utilization & Recycling Engines (CURE) Center**
 - **Overview**
 - **Faculty Lightning Talks**
 - **Panel Q&A**
3. Fusion Engineering Institute
4. Laboratory for Emerging Intelligence
5. Heterogeneous Integration of Semiconductors

UCSD CURE CENTER

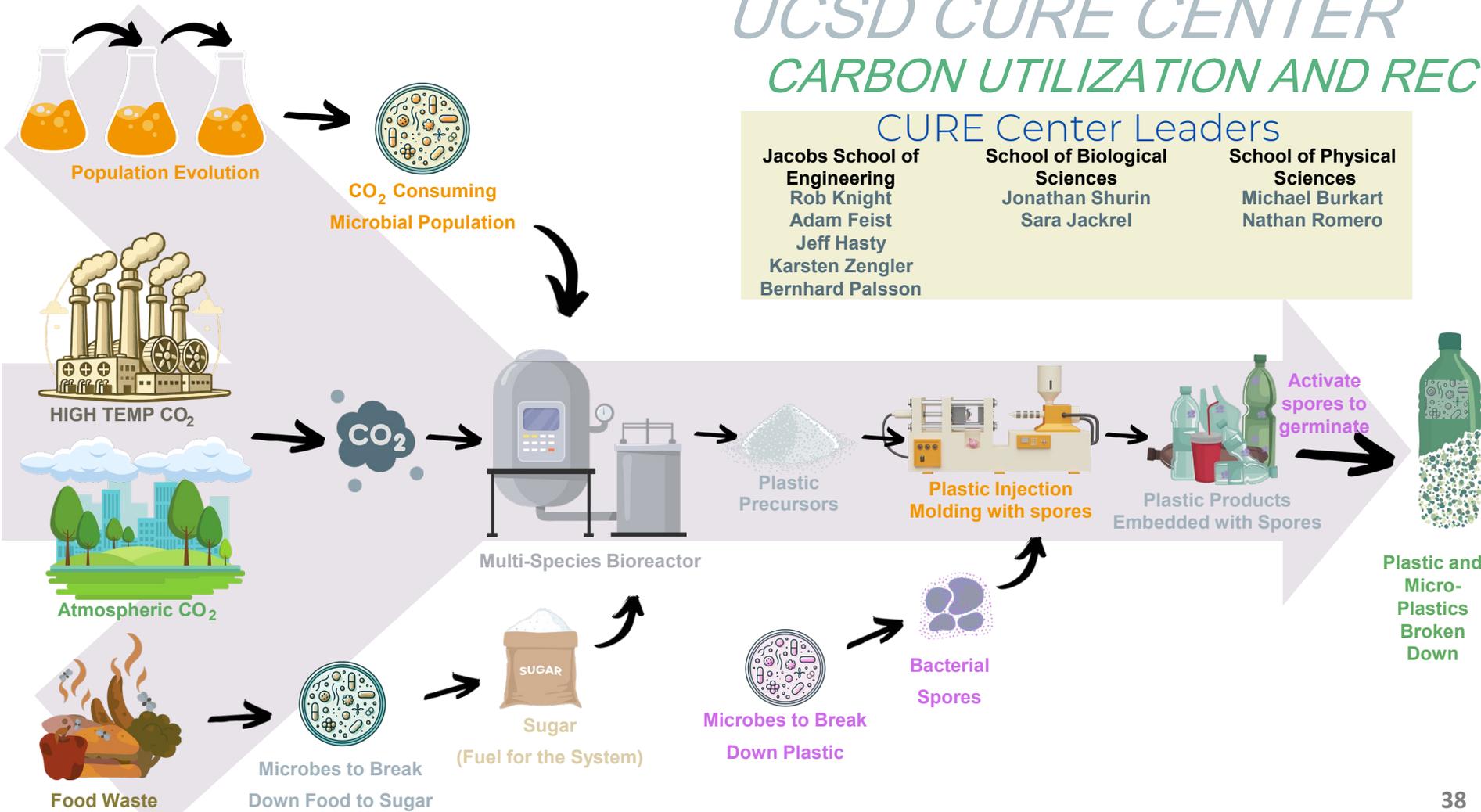
CARBON UTILIZATION AND RECYCLING

CURE Center Leaders

Jacobs School of Engineering
Rob Knight
Adam Feist
Jeff Hasty
Karsten Zengler
Bernhard Palsson

School of Biological Sciences
Jonathan Shurin
Sara Jackrel

School of Physical Sciences
Michael Burkart
Nathan Romero



Faculty Presentations



Bernhard Palsson
Professor
Bioengineering



Michael Burkart
Professor & Chair
Chemistry & Biochemistry



Jonathan Shurin
Professor
Ecology



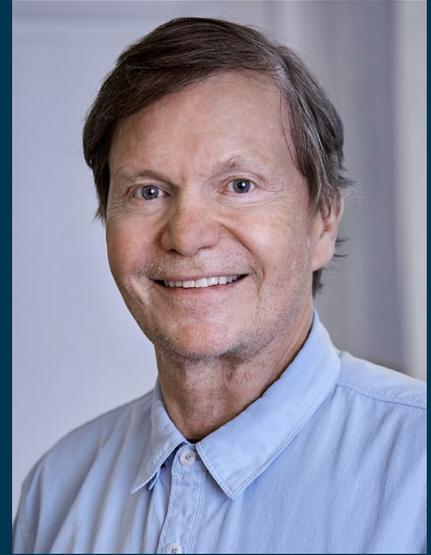
Adam Feist
Research Scientist,
Bioengineering

Carbon Utilization & Recycling Engines (CURE)

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

Faculty Presentations



Bernhard Palsson

Professor, Bioengineering

CURE: Biosustainability & Biomanufacturing

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

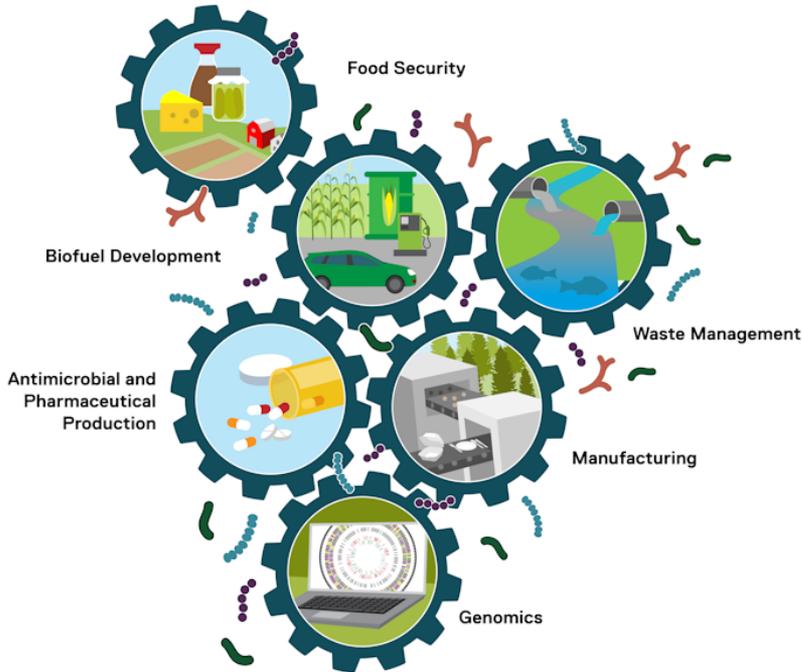
CURE:

Biosustainability and Biomanufacturing

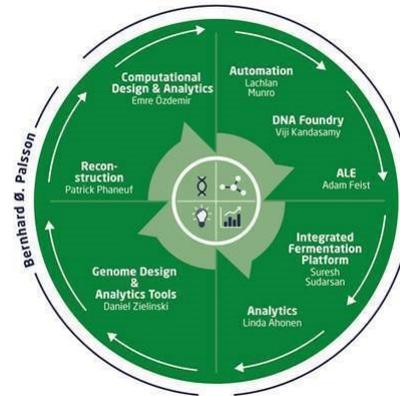
Bernhard Palsson
Bioengineering and Pediatrics
Presentation to CAP
Feb 6th 2025

UCSD/JSOE a site of an international Center

Bioeconomy 101



The Novo Nordisk Foundation
Center for Biosustainability

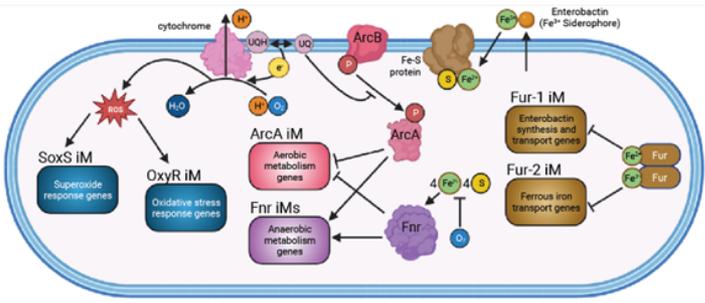


- 2011-2025
- >\$650M in research
- >\$30M direct@UCSD
- >30 spinouts
- >\$480M raised
- 120,00 sqft building

Knowledge-enriched data analytics

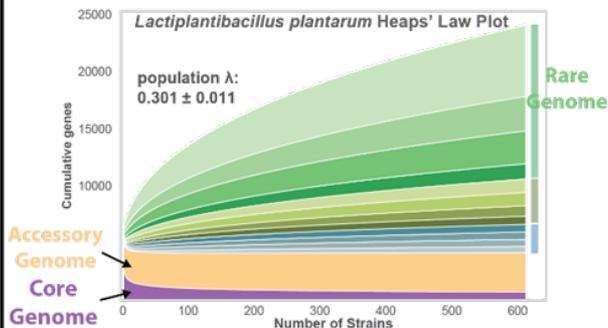
Transcriptomics

Expression regulation modules that characterize physiological responses



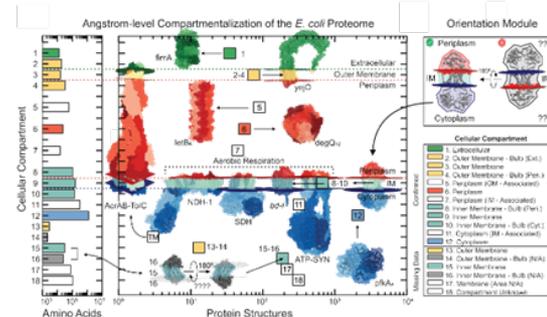
Pangenomics

Phylogroups provide structure to diversity in gene presence across strains



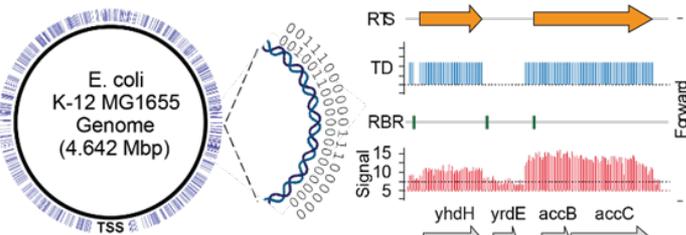
Structural Proteomics

Structure, structural annotation, and location of all quaternary complexes



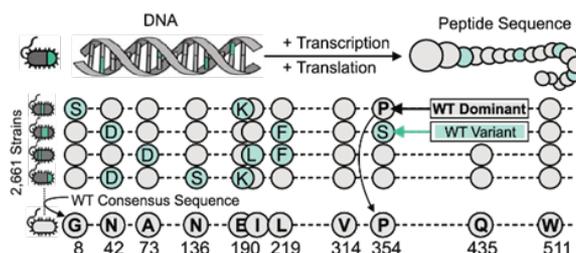
Bitomics

Quantitative knowledgebase of all functional information of a genome



Allelomics

Evolutionary and functional assessment of protein sequence variation across strains



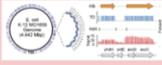
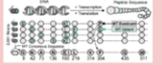
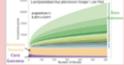
Metabolic Modeling

Genome-scale metabolic reconstructions



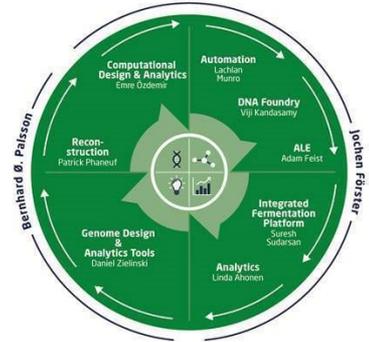
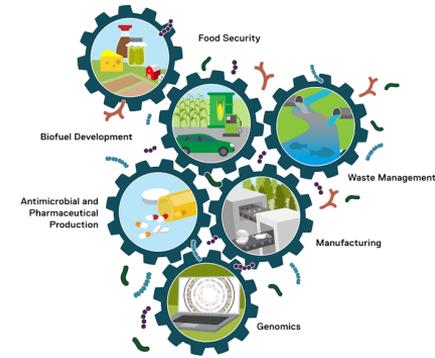
Need large data bases & analytics for production hosts:

Table needs to be filled out and made available to all

Industrial Bacteria	Bitomics 	Allelomics 	Pangenomics 	GEMs 	Structural Proteomics 	Transcriptomics 	Databases 
<i>E. coli</i>	Nucleic Acids Res. 2020	PNAS 2023	BMC Genomics. 2022 , Synth Syst Biotechnol. 2022 , pankb.org	Nucleic Acids Res. 2016	Bioinformatics 2018	Nat Commun. 2019	Nucleic Acids Res. 2019 & 2020 pankb.org
<i>B. subtilis</i>	automated generation	pankb.org	mSystems. 2021 , pankb.org	JBC 2007	automated generation	Nat Commun. 2020	Nucleic Acids Res. 2019 & 2020 pankb.org
<i>P. putida</i>	automated generation	pankb.org	pankb.org	Environ Microbiol. 2020	automated generation	mSystems 2024	Nucleic Acids Res. 2019 & 2020 pankb.org
<i>V. natriegens</i>	automated generation	pankb.org	pankb.org	automated generation	automated generation	Cell Reports 2023	Nucleic Acids Res. 2019 & 2020 pankb.org
<i>C. glutamicum</i>	automated generation	pankb.org	pankb.org	automated generation	automated generation	Microbiol. Res. 2023	Nucleic Acids Res. 2019 pankb.org
<i>Lactobacillaceae</i>	automated generation,	pankb.org , bioRxiv. 2023	Food Microbiol. 2023 , pankb.org	mSystems 2024	automated generation	Microbial Biotech. 2024	pankb.org
<i>Streptomyces</i>	automated generation	pankb.org	pankb.org	automated generation	automated generation	Advanced Science 2024	Nucleic Acids Res. 2019 pankb.org
Software	Bitome	GitHub	PyPhylon	COBRAPy	QSPACE	PyModulon	

Vision/Goals/Asks

- Vision
 - Get UCSD to the >\$100M scale
 - Get a dedicated 120,000 sq.ft. building
 - Develop a Genome Science and Engineering program by the end of the decade
- Asks: Near- & mid-term
 - \$20-30M over 5 years to enforce a dominant position in data analytics + computational biology
 - 4-6 core faculty slots to drive research and educational development in this area
- Goals: exciting new research directions
 - CURE–Develop new feedstocks: food waste, plastics, biological fibers (cellulose, lignin,..)
 - Metabolic Atlas of catabolic pathways for versatile degradation (pangenome-scale)
 - New biomanufacturing modalities: electrosynthesis as a disruptive manufacturing modality, new bioreactor designs



Faculty Presentations



Michael Burkart

Professor & Chair, Chemistry & Biochemistry

CURE: Renewable and biodegradable plastics from biomass

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

Renewable and biodegradable plastics from biomass

Michael Burkart, PhD

Department of Chemistry & Biochemistry
Center for Renewable Materials
California Center for Algae Biotechnology

University of California San Diego



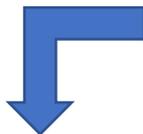
What We Do Well

1. Isolate **abundant metabolites** from biomass (microalgae)
2. Develop monomers using **scalable chemical processes**
3. Formulate **materials** (biodegradable plastics)
4. **Prototype** development with commercial partners

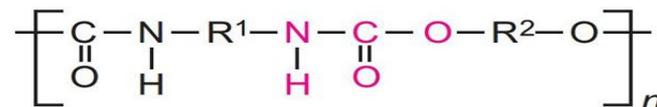
Metabolism – Chemistry – Polymers – Formulation – Manufacturing

From Microalgae into Performance Materials 2014-2024

Organic and process
chemistry



+



Diol (or Polyol)

Diisocyanate

Polyurethane



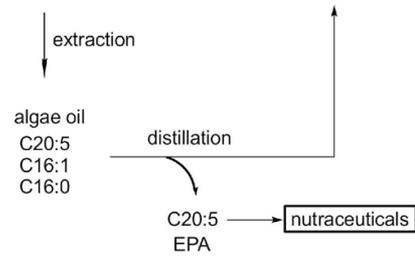
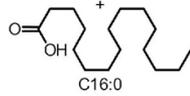
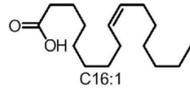
Formulation



Nannochloropsis salina
algae biomass



Nannochloropsis salina
algae biomass





Nannochloropsis salina
algae biomass

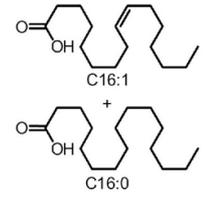
↓ extraction

algae oil
C20:5
C16:1
C16:0

distillation

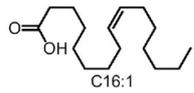
C20:5
EPA

nutraceuticals

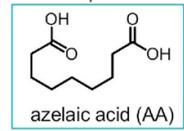


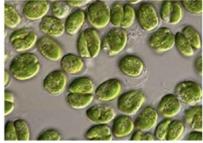
crystallization
88%

C16:0



O₃; O₂, heat
>85%





Nannochloropsis salina
algae biomass

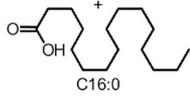
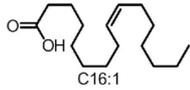
extraction

algae oil
C20:5
C16:1
C16:0

distillation

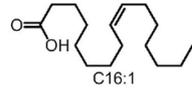
C20:5
EPA

nutraceuticals

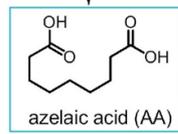


crystallization
88%

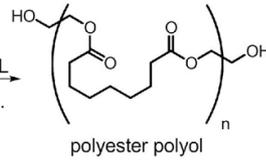
C16:0



O₃; O₂, heat
>85%



EG
DBTDL
quant.





Nannochloropsis salina
algae biomass

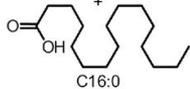
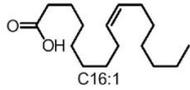
extraction

algae oil
C20:5
C16:1
C16:0

distillation

C20:5
EPA

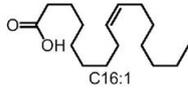
nutraceuticals



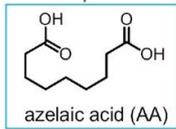
crystallization

88%

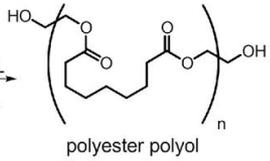
C16:0



O₃; O₂, heat
>85%



EG
DBTDL
quant.



65% renewable
100% compostable
polyurethanes

diisocyanate
(petroleum-based)



Nannochloropsis salina
algae biomass

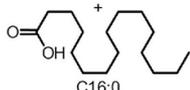
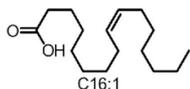
extraction

algae oil
C20:5
C16:1
C16:0

distillation

C20:5
EPA

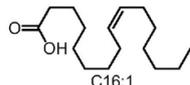
nutraceuticals



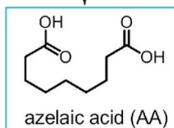
crystallization

88%

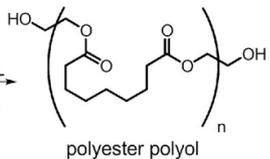
C16:0



O₃; O₂, heat
>85%



EG
DBTDL
quant.

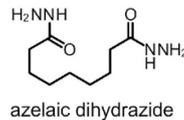


65% renewable
100% compostable
polyurethanes

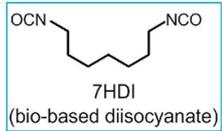


diisocyanate
(petroleum-based)

1. MeOH, H⁺
2. NH₂NH₂•H₂O
> 90%

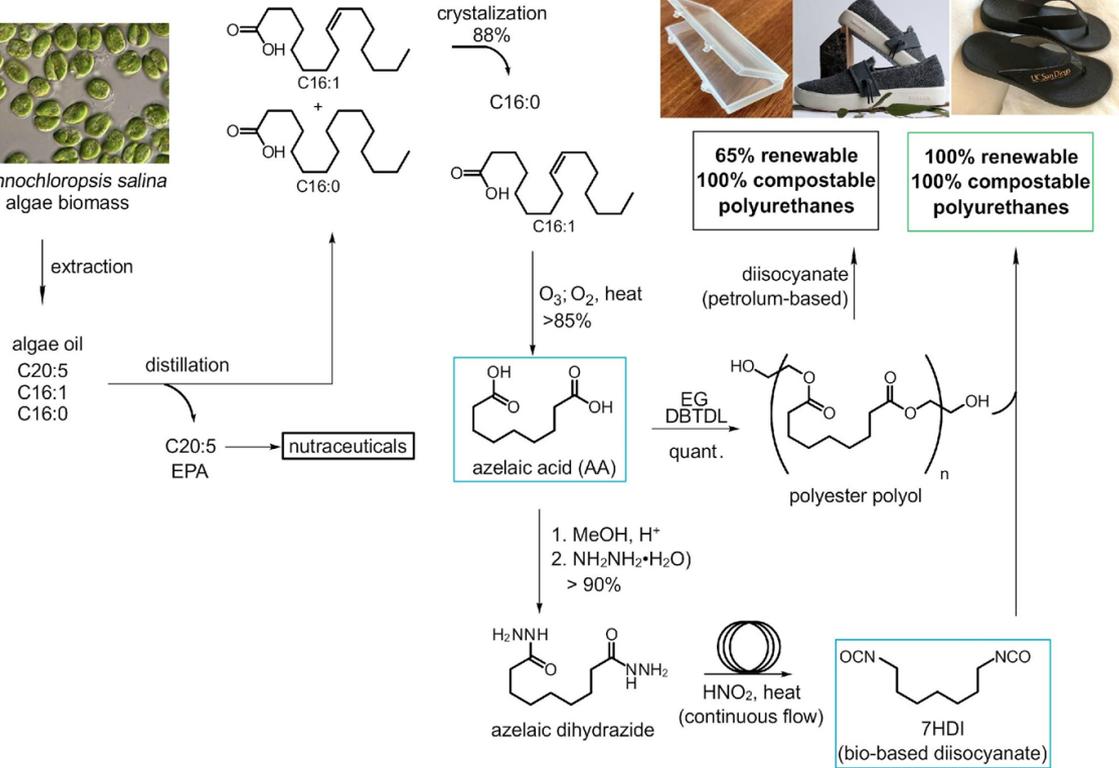


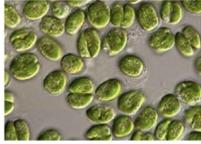
HNO₂, heat
(continuous flow)



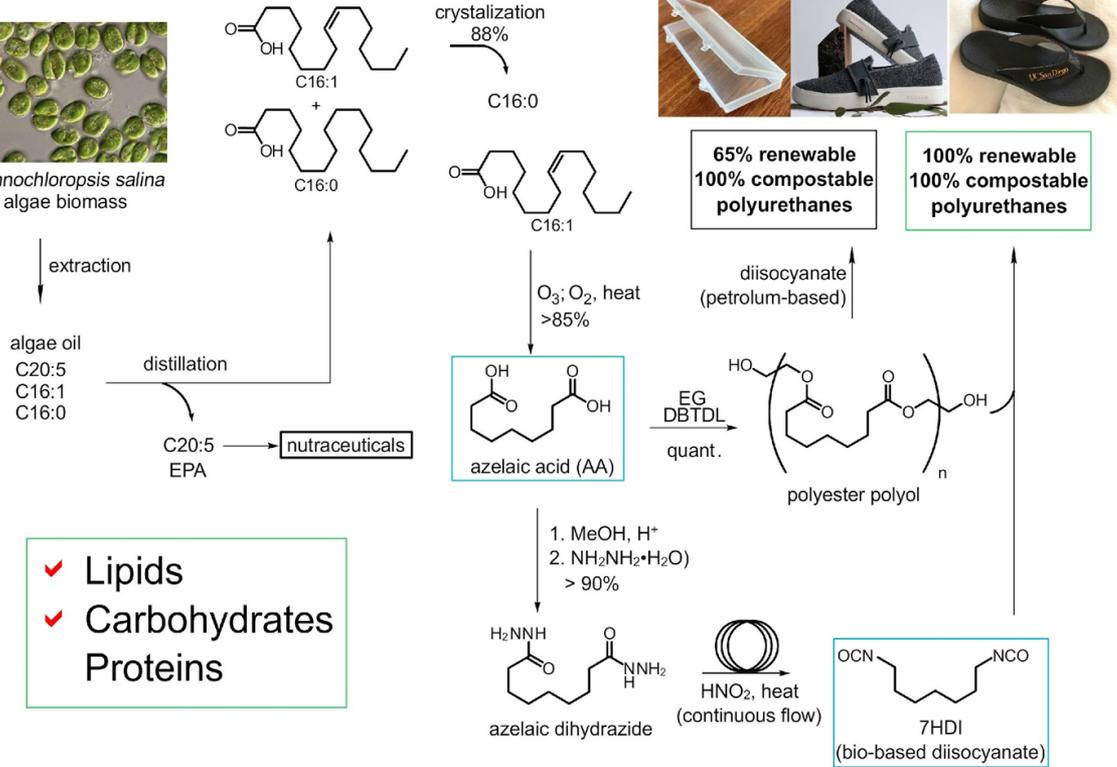


Nannochloropsis salina
algae biomass





Nannochloropsis salina
algae biomass



Outcomes (2014-2024)

- 6 Licensed patents
- 21 peer-reviewed publications
- \$15M in grant funding (DOE)
- 2 startup companies



Algenesis Materials

\$15M Seed

\$15 Non-dilutive (SBIR)

\$100M DOD DIBC (pending)

Products/partnerships:

Patagonia, Herman Miller,

IKEA, Blueview (self-branded)





Thank you!



Faculty Presentations



Jonathan Shurin

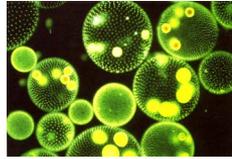
Professor, Ecology, Behavior & Evolution

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

CURE: Environmental Impacts of Microplastics

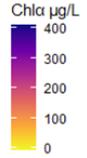
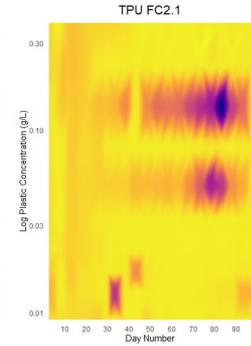
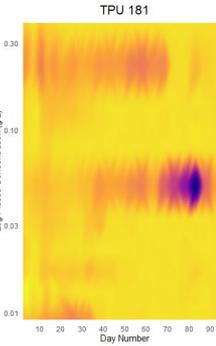
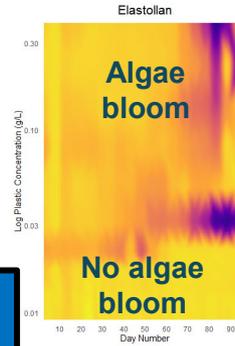
What are the fate and impact of microplastics in the environment?



Algae

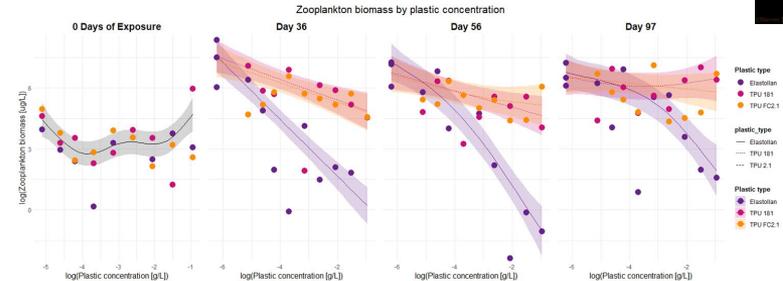
Biodegradable TPUs

Typical TPU



- Typical thermoplastic polyurethanes (TPUs) cause algae blooms in experimental ponds
 - *Algae blooms produce toxins, pathogenic bacteria and hypoxia that kill fish and other animals*
- Plastic pollution causes algae blooms by killing herbivorous zooplankton that eat algae
- Two biodegradable TPUs developed at UCSD had smaller effects on algae and zooplankton

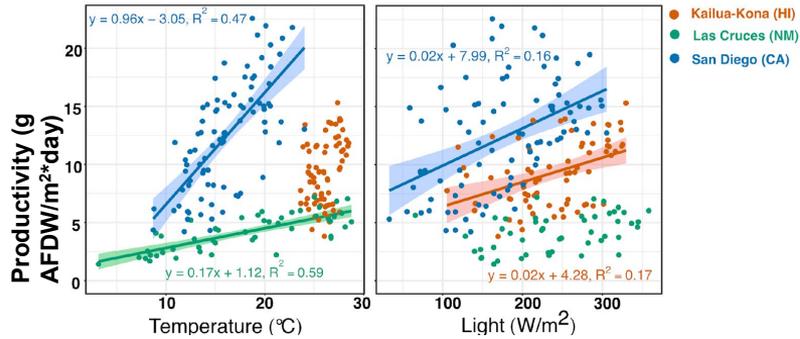
Zooplankton biomass vs. plastic concentration



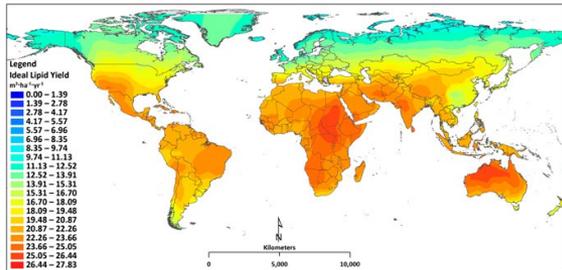
Where should I put my algae farm?



Three-year field experiment



Model predictions



Lots of variation independent of climate (light and temperature)

Faculty Presentations



Adam Feist

Research Scientist, Bioengineering

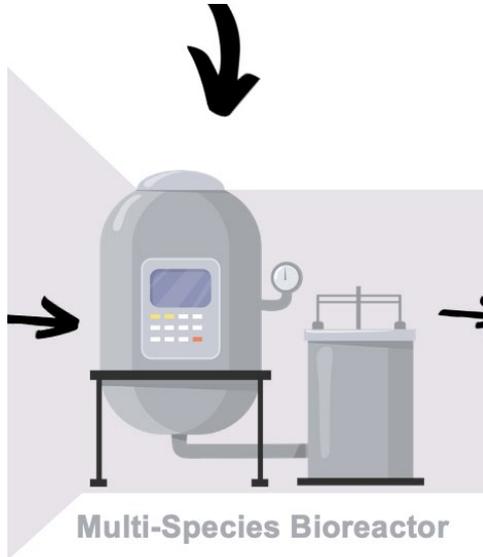
CURE: Strain Design and Optimization

UC San Diego

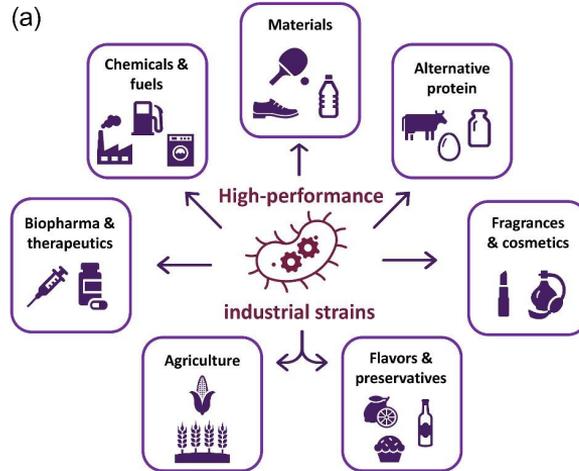
JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

Strain Design and Optimization Powers Biomanufacturing

CURE CENTER



Optimized Strains
Drive Applications

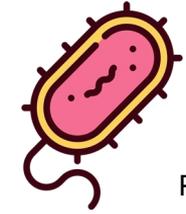


THE FEIST LAB

- Focused on Evolutionary Engineering of Microbes
- Best-In-Class Technology Platform
 - Broad Applicability
 - Efficient Operation
- Laboratory Automation
- High-Quality Data Capture
- Biofoundry Concept

Evolutionary Engineering - What is it?

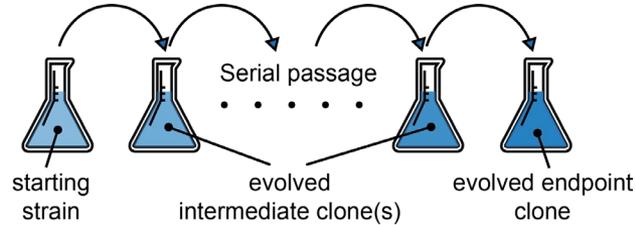
Wild-type or Engineered Strain



Property of Interest

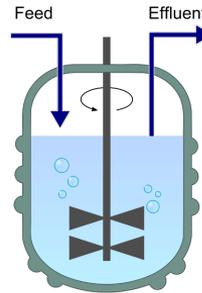


Adaptive Laboratory Evolution (ALE) process

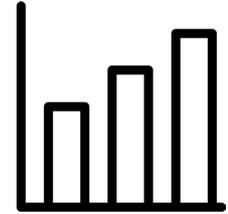


These cells have mutations

Property of Interest



Characterization & Sequencing



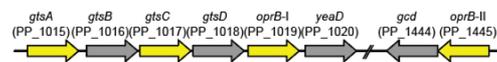
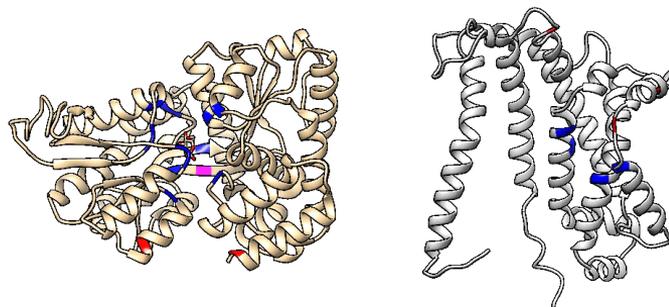
The Platform

Driven by Automation and Bioinformatics

First-in-Class Lab Automation – 3rd Gen Robot



Evolved Cellular Components –
Identified at the Genetic Level



	gtsA			gtsC				oprB-I		oprB-II/yeaD		oprB-II
Position	100	304	427	1221	133	238	185	242	+47/-71	+65/-53	265	
Wildtype	A	N	A	F	L	T	Q	K			Y	
A5_F2_I1	A	N	A	F	L	T	Q	K			Y	
A5_F21_I1	A	S	A	F	L	T	Q	K			Y	
A5_F47_I1	A	S	A	F	L	T	Q	K			Y	
A5_F85_I1	A	N	T	F	L	T	*	K			Y	
A6_F2_I1	A	N	A	F	L	T	Q	+a			Y	
A6_F13_I1	A	N	A	F	L	T	Q	+a			Y	
A6_F39_I1	A	D	A	F	L	T	Q	K			Y	
A6_F90_I1	V	D	A	F	L	T	Q	K			Y	
A8_F1_I1	A	N	A	F	L	T	Q	K	c→a		Y	
A8_F38_I1	A	N	A	L	L	T	Q	K		g→I	Y	
A8_F79_I1	A	N	A	F	F	T	Q	K		g→I	Y	
A8_F92_I1	A	D	A	F	F	T	Q	K		g→I	Y	

Reproducibly
Occurring
Mutations -
Power of Multiple
Experiments

Application – Addressing Plastic Waste

Seven Resin Identification Codes (RICs)

Polymer Name	POLYETHYLENE TEREPHTHALATE	HIGH-DENSITY POLYETHYLENE	POLYVINYL CHLORIDE	LOW-DENSITY POLYETHYLENE	POLYPROPYLENE	POLYSTYRENE	All other plastics, including acrylic, fiberglass, nylon, polycarbonate, and poly(lactic acid) (a bioplastic)
Resin Identification Code							
Abbreviation	PET or PETE	HDPE	PVC	LDPE	PP	PS	OTHER
Recyclable?	Commonly Recycled	Commonly Recycled	Sometimes Recycled	Sometimes Recycled	Occasionally Recycled	Commonly Recycled (but difficult to do)	Difficult to Recycle
Percentage Recycled Annually	 36%	 30-35%	 <1%	 6%	 3%	 34%	 Low

RSC Education

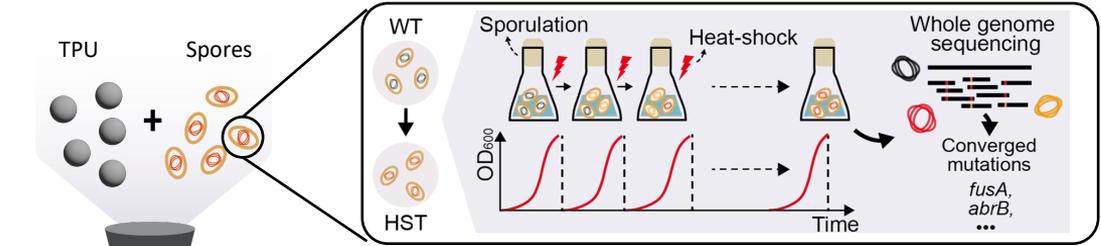
- Polyurethane – specialty elastomer with good elasticity / resistance to stresses (uses include: automotive parts, electronics cases, sporting goods and footwear)
- Polyurethane can be collected under “category 7”
- Only 0.3% of collected plastics in this category is recycled in the US*

*Resour. Conserv. Recycl., **167**, 105440 (2021).

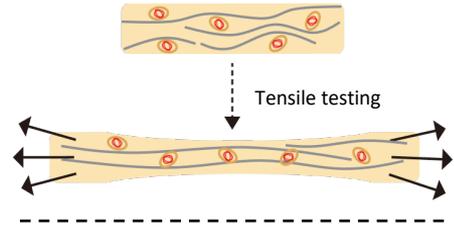
Degradable Biocomposite (BC) Thermoplastic Polyurethane (TPU)

What if we integrate **spore-forming TPU-degrading bacteria** into TPU?

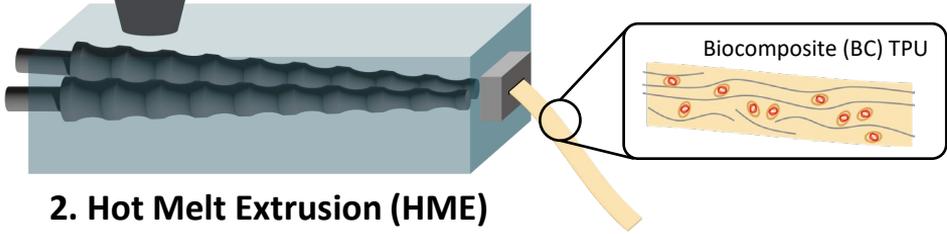
1. Heat Shock Tolerization (HST) ALE Optimized Strains



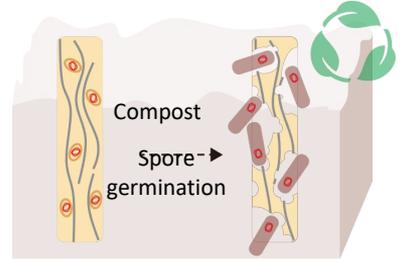
3. Advanced Mechanical Properties



2. Hot Melt Extrusion (HME)



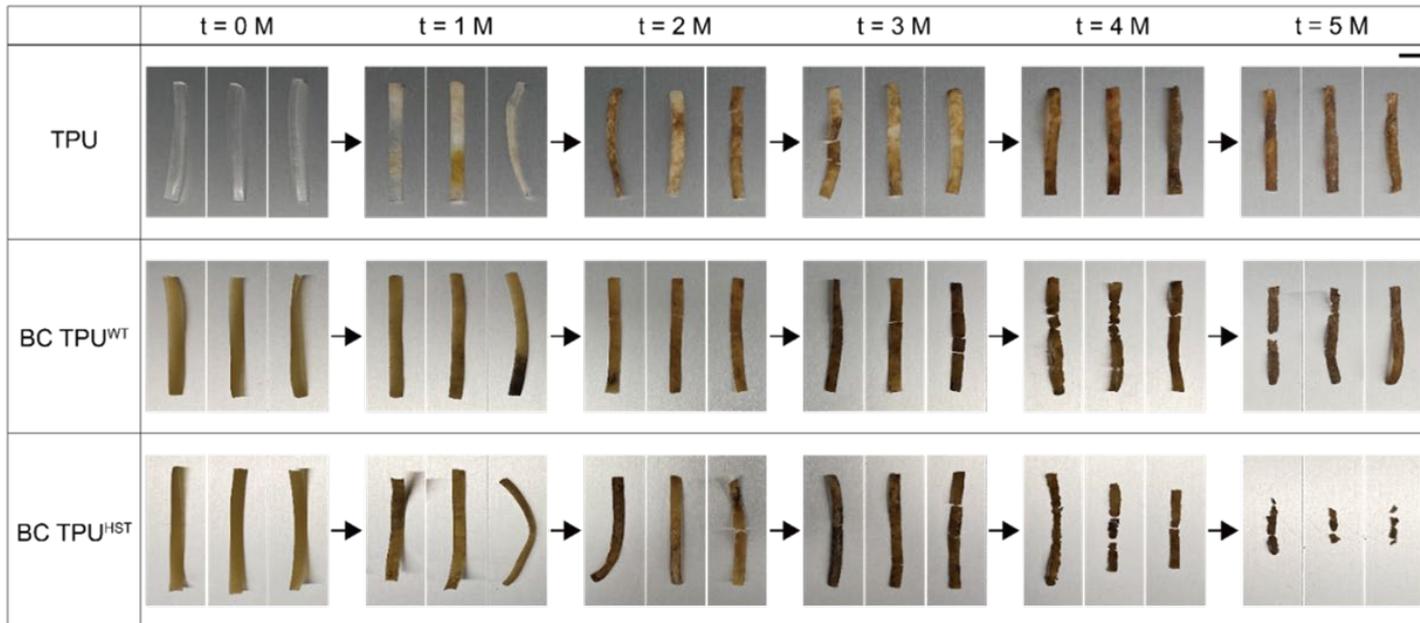
4. Programmable & Faster disintegration



Programmed & Facilitated Biodegradation of BC TPU

Biodegradation Conditions - Autoclaved compost: Less microbially active environment simulating TPU in/on land

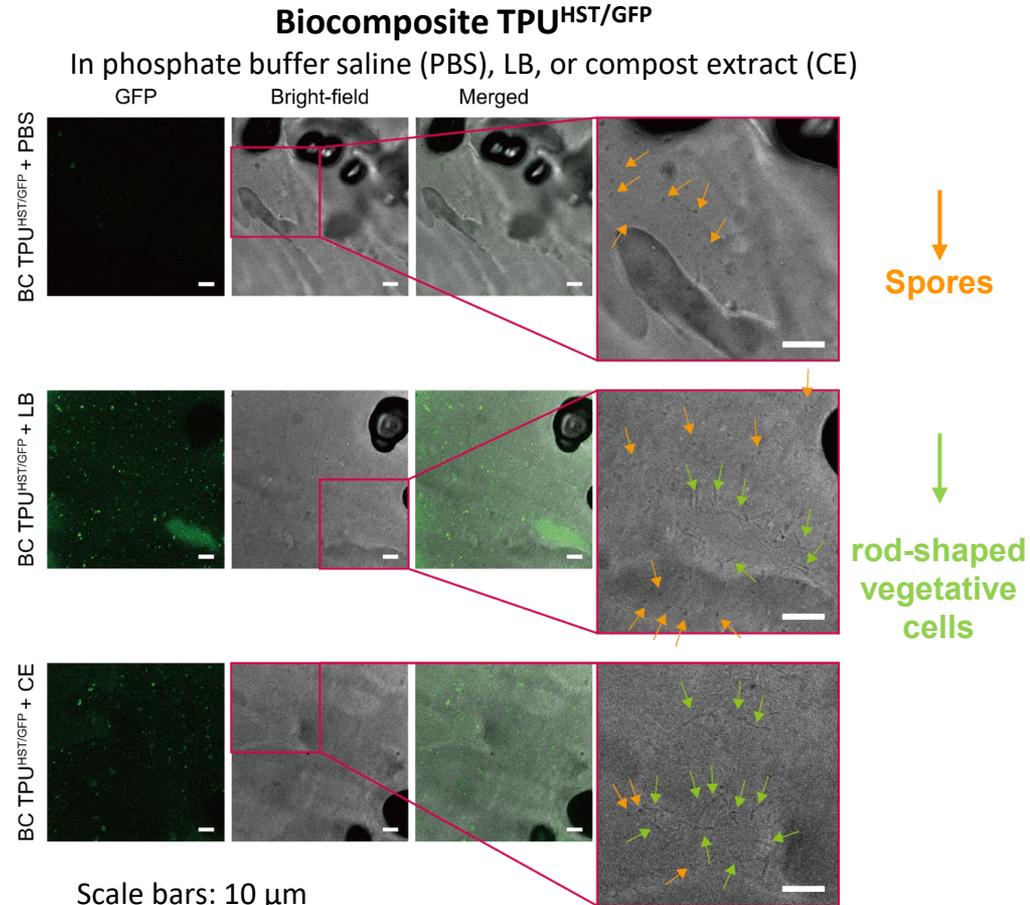
Biodegradation: Spores in BC TPU germinated given the nutrients/moisture in compost and facilitated the degradation of TPU



Synthetic Biology - Rationally Programming Biological Function into Biocomposites

Fluorescence, bright-field and merged images (left to right) - confocal laser scanning microscopy (CLSM)

- Control: Absence of fluorescence signal from just TPU and BC TPU^{HST} (no GFP plasmid)
- BC TPU^{HST/GFP} incubated in LB and CE exhibited strong GFP
- Result indicates the programmed plasmid could be retained and protected along with chromosome within HST spores





AMERICAN
SOCIETY FOR
MICROBIOLOGY

nature communications



Article

<https://doi.org/10.1038/s41467-024-47132-8>

Biocomposite thermoplastic polyurethanes containing evolved bacterial spores as living fillers to facilitate polymer disintegration

Received: 11 September 2023

Accepted: 21 March 2024

Published online: 30 April 2024

Check for updates

Han Sol Kim^{1,8}, Myung Hyun Noh^{2,3,8}, Evan M. White⁴,
Michael V. Kandefer⁴, Austin F. Wright⁴, Debika Datta¹, Hyun Gyu Lim²,
Ethan Smiggs², Jason J. Locklin⁴, Md Arifur Rahman⁵ ,
Adam M. Feist^{2,6} & Jonathan K. Pokorski^{1,7}

The field of hybrid engineered living materials seeks to pair living organisms with synthetic materials to generate biocomposite materials with augmented function since living systems can provide highly-programmable and complex behavior. Engineered living materials have typically been fabricated using



Faculty Panel



Bernhard Palsson
Professor
Bioengineering



Michael Burkart
Professor & Chair
Chemistry & Biochemistry



Jonathan Shurin
Professor
Ecology



Adam Feist
Research Scientist,
Bioengineering

Carbon Utilization & Recycling Engines (CURE)

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

CAP Business



Wil Dyer
Director

Corporate Affiliates Program



Alice Grgas
Associate Director

Corporate Affiliates Program - Talent Programs

CAP Updates

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

Jacobs School Corporate Affiliates Program

UC San Diego



CAP Talent Programs: Recruiting Continues!

**Send us the description(s) and we'll
take care of the rest!**

- Team Internship Program (TIP)
- Cooperative Education (Co-op)
- Individual Internships
- Full-time/Part-time jobs
- Alumni for experienced roles



Students meet engineers & tour Intuit

Contact Alice Grgas at agrgas@ucsd.edu

CAP Talent Programs: Customized Engagement

- Tailored & exclusive events for your company
- Info Sessions, Tech Talks, Resume Reviews
- Micro Career Fair / Targeted Networking
- Mock Interviews or On-Campus Interviews
- Speed Recruiting
- Site tours at your company



Contact Alice Grgas at agrgas@ucsd.edu; Learn more at jacobsschool.ucsd.edu/talent

Senior (Capstone) Design Projects

Why Senior Design Projects?

- Team of 3-6 students
- Student skills & fresh ideas in action on your technology
- Mentor students
- IP assigned to sponsor

Department	Format	Deadline to Submit Proposal
Bioengineering	1 year project	May 1, 2025
Chemical Engineering	Winter & Spring Quarters (consecutive)	Dec 2, 2024
Electrical & Computer Engineering	Winter Quarter & Spring Quarter	Dec 2, 2024
Mechanical & Aerospace Engineering	November - March or February - June	Oct 15, 2024 (Fall/Winter) Jan 15, 2025 (Winter/Spring)
NanoEngineering	Winter & Spring Quarters (consecutive)	Jan 6, 2025

UC San Diego

JACOBS SCHOOL OF ENGINEERING

RESEARCH EXPO 2025

Wednesday, April 30th

- ✓ CAP Executive Judges
- ✓ CAP Sponsorships
- ✓ Ph.D Recruiting

REGISTER AT [JACOBSSCHOOL.UCSD.EDU/RESEARCH-EXPO/JUDGES](https://jacobsschool.ucsd.edu/research-expo/judges)

From Last CAP Board Meeting: Announcing Generative AI Research Summit



- February 20-21, 2025
- Atkinson Hall
- Sessions about the GenAI frontier and its impacts on:
 - Science
 - Society
 - Creativity

Contact: Wil Dyer, wdyer@ucsd.edu

<https://genaisummit2025.ucsd.edu/>

CAP Executive Guest Invitations to Research Reviews



Supply Chain
Research Forum
April 8-9, 2025



Networked Systems
Research Review
May 8-9, 2025



Visual Computing
Research Retreat
June 5, 2025

Current Slate of Important Dates

February 20-21	UC San Diego Generative AI (GenAI) Summit
March 11-14	Kyoto Prize Symposium at UC San Diego
April 7-9	Institute for Supply Chain Excellence & Innovation 25th Annual Forum
April 30	43rd Annual Jacobs School Research Expo
May 8-9	Center for Networked Systems Research Review
June 5	Center for Visual Computing Research Review
June 5	Spring CAP Executive Board Meeting

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Corporate Affiliates Program

Thank you!
Next CAP Executive Board Meeting:
June 5, 2025