

NSF Engineering Research Center (ERC) for **Reinventing the Nation's Urban Water Infrastructure (ReNUWIt)**

ERCs- Flagship program of National Science Foundation (NSF)

Four ERC awards are made annually

Funded @ \$18M for 5 years with possible extension to a further 5 years

Interdisciplinary, multi-institutional centers joining academia, industry, and government in partnership to produce transformational engineered systems

Pursuit of advances in complex engineered systems and systems-level technologies that could spawn whole new industries or radically transform the product lines, practices, and processes of current industries.

NSF ERC: ReNUWit (2011 → 2015 → 2020)

Lead: Stanford

Collaborators: UC Berkeley, CO School of Mines, NMSU

Stanford PI:
D. Luthy

Berkeley PI:
D. Sedlak

Mines PI:
J. McCray

NMSU PI:
N. Khandan

Deans'
Advisory Council

Research

Education

Students'
Advisory Council

E-thrust

N-thrust

U-thrust

- K-12 program; Teachers program
- Community College programs
- Undergrad/Graduate programs
- Post-doc programs

Scientific
Advisory Board

Industrial
Advisory Board

NSF ERC: ReNUWIt (2011 → 2015 → 2020)

ReNUWIt Funding to NMSU				
Year		Award	NSF-approved	Additional from Stanford
1	2011	Initial	\$387,509	-
2	2012	Initial	\$381,103	\$33,000
3	2013	Initial	\$385,744	\$100,899
4	2014	Initial	\$446,147	\$66,081
5	2015	Initial	\$453,096	\$79,752
6	2016	Renewal	\$436,000	\$156,828
7	2017	Renewal	\$436,000	
8	2018	Renewal	\$436,000	
9	2019	Renewal	\$436,000	
10	2020	Renewal	\$436,000	
			\$4,233,599	\$436,560

ReNUWIt and CE Dept.

Project 1: N-thrust,

PI: Drs Bawazir/King ~ \$99,900/yr

Project 2: E-thrust,

PI: Dr Xu ~ \$78,131/yr

Project 3 & 3a: E-thrust,

PI: Drs Khandan/Papelis ~ \$257,924/yr

NSF ERC: ReNUWit (2011 → 2015 → 2020)

Project 1: Managed riparian zones to conserve/improve waterquality and habitat

Lead: Drs Bawazir/King. Collaborator: Elephant Butte Irrigation District



NSF ERC: ReNUWit (2011 → 2015 → 2020)

Project 2: Enhanced water recovery for reuse using cost-effective electro dialysis

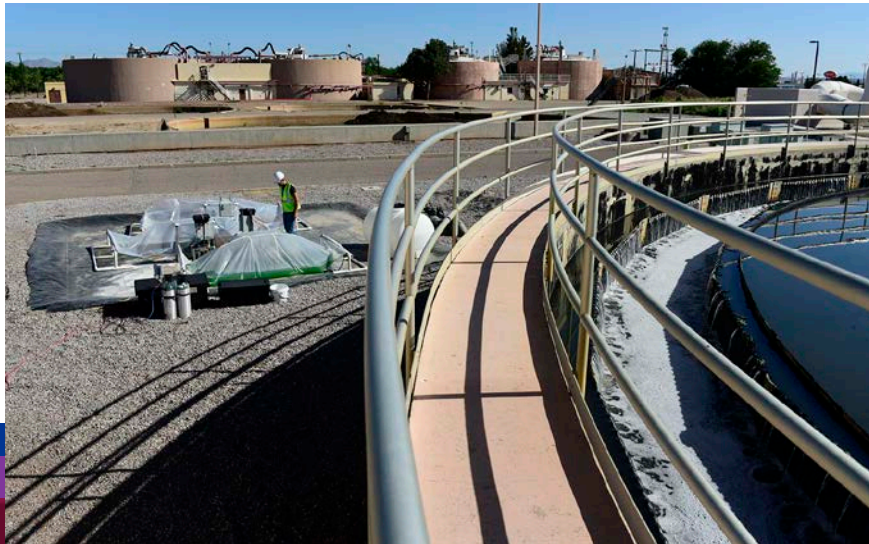
Lead: Dr Xu. Collaborator: El Paso Water Utilities TX, Scottsdale Water Campus, AZ



NSF ERC: ReNUWit (2011 → 2015 → 2020)

Project 3 & 3a: Algal WW treatment & recovery of energy/nutrients

Lead: Drs Khandan/Papellis. Collaborator: City of Las Cruces Utilities, LC WWTP



NSF ERC: ReNUWIt (2011 → 2015 → 2020)

Accomplishments: Outputs & Outcomes

- ✓ 13 MS students graduated; 7 In progress
- ✓ 6 PhD students graduated; 6 In progress
- ✓ 35 Peer-reviewed journal publications
- ✓ 11 High school students under Young Scholar Program
- ✓ 3 High school teachers under RET Program
- ✓ 14 Undergraduates under REU Program
- ✓ 22 Community College students under SCCORE Program
- ✓ 1 Patent filed on algal wastewater treatment
- ✓ 7 Student Paper Awards at Regional/National conferences

NSF ERC: ReNUWIt (2011 → 2015 → 2020)

Accomplishments: Outputs & Outcomes

- ✓ Negotiated with Provost for a new faculty position
- ✓ Secured faculty position vacated by Dr Hanson
- ✓ Young Scholar won a place in the White House Science Fair to present algal research to President Obama
- ✓ NSF Food-Energy-Water Supplemental Grant to Khandan
- ✓ WRRRI and BoR grants to Xu
- ✓ NSF-GRFP Graduate Fellowship Grant to Juan Solis
- ✓ CONACYST Award to Aldo Pinion



Dr Pei Xu, 2013

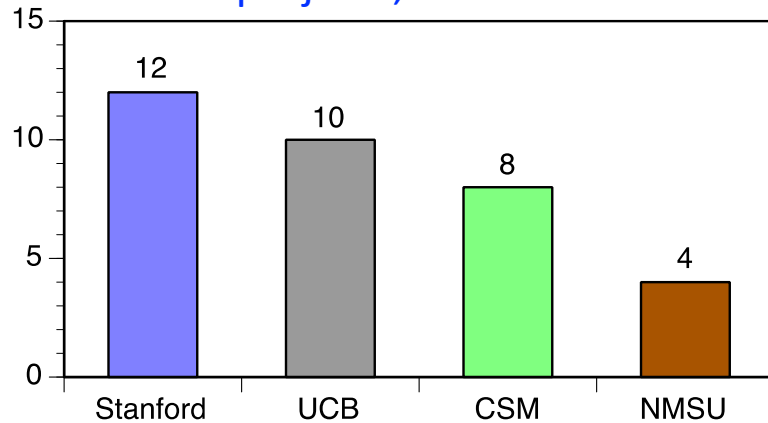


Dr Yanyan Zhang, 2016

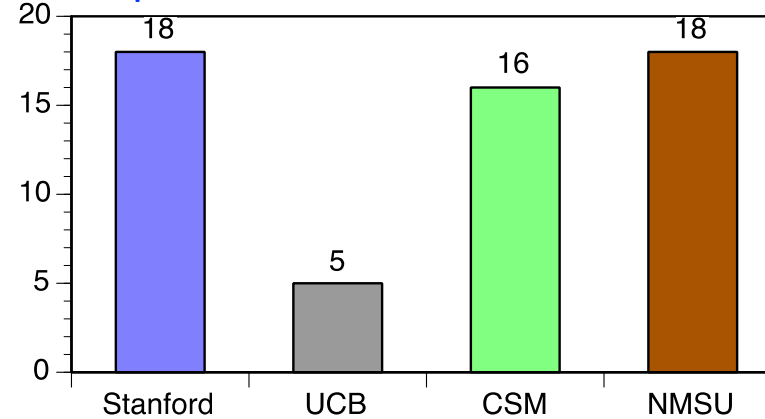
NSF ERC: ReNUWit (2011 → 2015 → 2020)

Accomplishments: Outputs & Outcomes

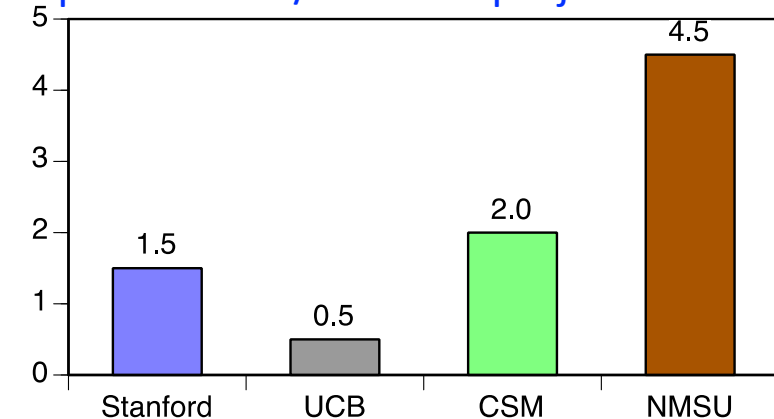
Research projects, 2014-15



ISI publications, 2014-15

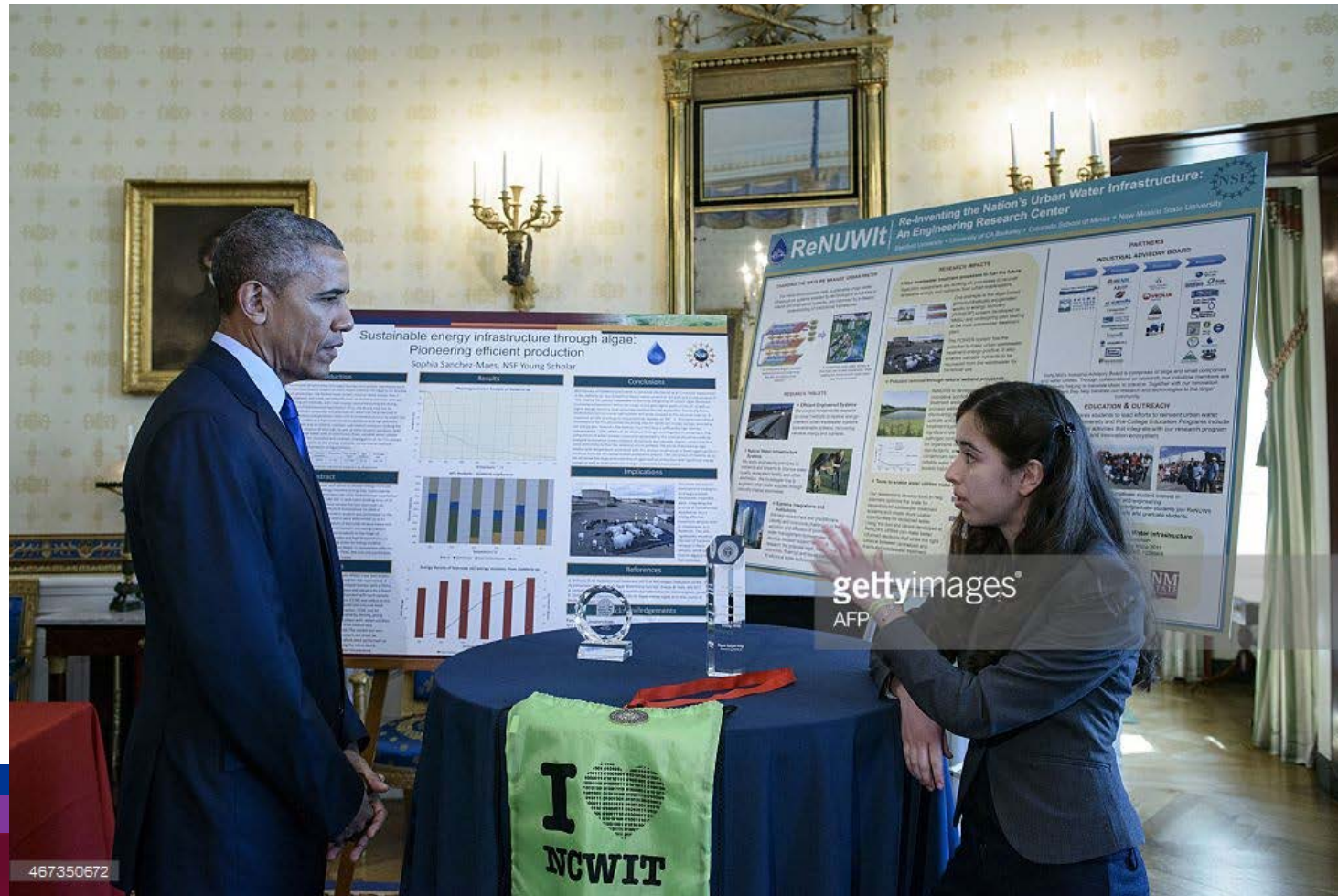


ISI publications/research project



NSF ERC: ReNUWit (2011 → 2015 → 2020)

Accomplishments: Outputs & Outcomes



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