

Mathematical Sciences Innovation Incubator (MSII)
FY 2014 Pilot Activity
Award Titles

Connecting Atomistic and Continuum Amorphous Solid Mechanics via Non-equilibrium Thermodynamics

Rycroft Harvard U MPS /DMR

CRCNS US-Israel Research Proposal: Understanding single neuron computation by combining biophysical and statistical models

Urban Carnegie-Mellon U CSE /IIS

Naturalistic Computation and Signaling by Neural Populations in the Primate Retina

Paninski Columbia U CSE /IIS

Computation of Visual Context Information in the Primary Visual Cortex

Angelucci U of Utah BIO /IOS

GOALI: Convective Delivery of Clot-Busting Drugs to Dead-End Arteries for Stroke Victims by Magnetically Driven Flows

Bonnecaze U of Texas at Austin ENG /CBET

EAGER: Microetching of the Human Brain

Edwards U of Pennsylvania BIO /IOS

Emergence of Geometric Order and Cell Identity in the Cone Photoreceptor Mosaic

Lubensky U of Michigan Ann Arbor BIO /IOS

Improved Bayesian phylogenetic inference based on approximate conditional independence

Larget U of Wisconsin-Madison BIO /DEB

EAGER: Initiative for Physics and Mathematics of Neural Systems

Hasselmo Boston U MPS /PHY

Quantifying Inter-Annual to Decadal Uncertainty in Climate Models Related to Initial Ocean Conditions

Tokmakian Naval Postgraduate School GEO /OCE

Noisy Secrets as Alternatives to Passwords and PKI

Reyzin Boston U CSE /CNS

Design and Analysis of Symmetric Key Ciphers

Klapper U of Kentucky CSE /CNS

Black-box Evaluation of Cryptographic Entropy at Scale

Shacham	UCSD	CSE /CNS
Heninger	U of Pennsylvania	

A Modular Approach to Cloud Security

Devadas	MIT	CSE /CNS
van Dijk	U of Connecticut	
Canetti	Boston U	

Center for Encrypted Functionalities

Sahai	UCLA	CSE/CNS
Lewko	Columbia U	
Boneh	Stanford U	
Hohenberger	Johns Hopkins U	
Waters	U of Texas at Austin	

Better Security for Efficient Secret-Key Cryptography

Tessaro	UCSB	CSE /CNS
---------	------	----------

CAREER: Non-Commutative Cryptography from Hard Learning Problems: Theory and Practice

Nicolosi	Stevens Institute of Tech	CSE /CNS
----------	---------------------------	----------

Symbolic-Numeric Approaches to Polynomials

Sommese	U of Notre Dame	CSE /ACI
Hauenstein	U of Notre Dame	
Bates	Colorado State U	

STORM: a Scalable Toolkit for an Open community supporting near Realtime high resolution coastal Modeling

Dawson	U of Texas at Austin	CSE /ACI
--------	----------------------	----------

Solving Polynomial Systems with PHCpack and phcpy

Verschelde	U of Illinois at Chicago	CSE /ACI
------------	--------------------------	----------

Learning a Union of Subspaces from Big and Corrupted Data

Vidal	Johns Hopkins U	CSE /IIS
-------	-----------------	----------

Topological Data Analysis and Machine-Learning with Community-Accepted Features

Harer	Duke U	CSE /IIS
-------	--------	----------

Theory and Algorithms for Processing Data with Sparse and Multilinear Structure

Bresler	U of Illinois at Urbana-Champaign	CSE /IIS
---------	-----------------------------------	----------

Hunch & Crunch: Iterative Crowdsourced Hypothesis Generation

Bagrow	U of Vermont	CSE /IIS
--------	--------------	----------