

Institutional Change Via STEMJazz

Christopher Rose

Professor of Engineering

Associate Provost for STEM Initiatives

Brown University

MIT Forum for Equity

Equity in Engineering Education

February 24, 2021

Faculty Are Forever

Self-replication is the norm w/o action

Diversity *sans* cohesion → unstable
(isolation, disaffection, flight)

Diversity *sans* achievement → unstable
(isolation, disaffection, flight)

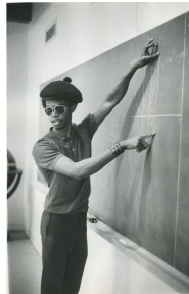
WHAT TO DO?

MODEL: A STEM Continuum (from Our MIT youth)

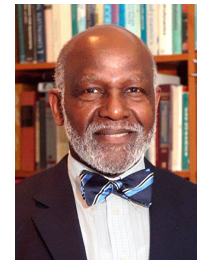
Instigator/Trailblazer



Undergrads



Grad/Postdocs



Faculty

The Dream
Critical Mass
+ Community
+ URM/HUG Creativity
=
Breakthroughs!

COMPETITIVE ADVANTAGE

Building The Dream@Brown

Diversity & Inclusion Action Plan

Administration provides resources

Departments provide plans

Administrative oversight and accountability

Administrative Will is ESSENTIAL



**President
(Chris Paxson)**



**Provost
(Rick Locke)**

Understanding Race in America is ESSENTIAL



**CSREA Director
(Tricia Rose)**

A HUG STEM Gadfly/Ombuds-Architect is ESSENTIAL



**Associate Provost for STEM Initiatives
(Chris Rose)**

Diversity and Inclusion Action Plan

Program Palette Sampler

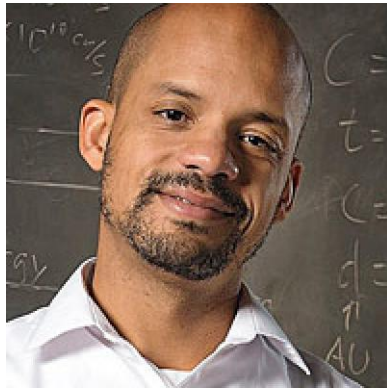
Provost's Visiting Professor Program



Jim Gates



Ron Aubert

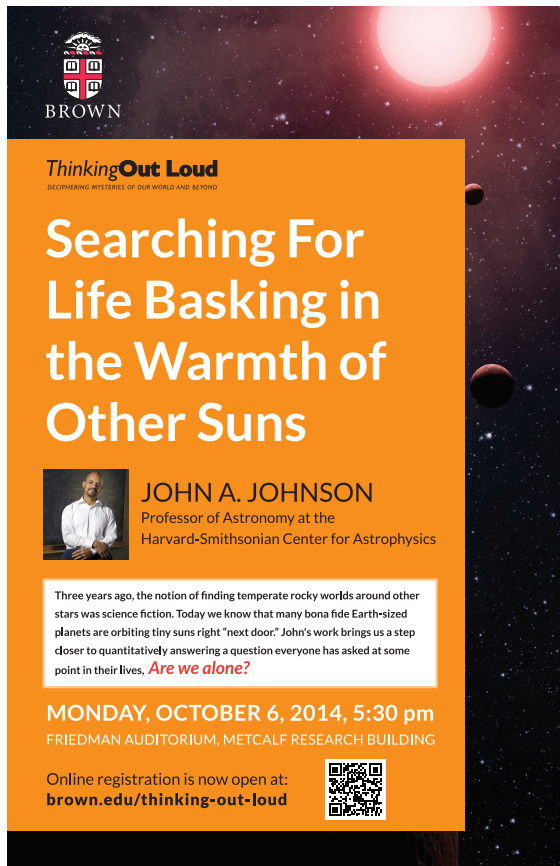


John Johnson



Carlos Castillo-Chavez


Presidential Colloquium Series



BROWN

ThinkingOut Loud
DECIPHERING MYSTERIES OF OUR WORLD AND BEYOND


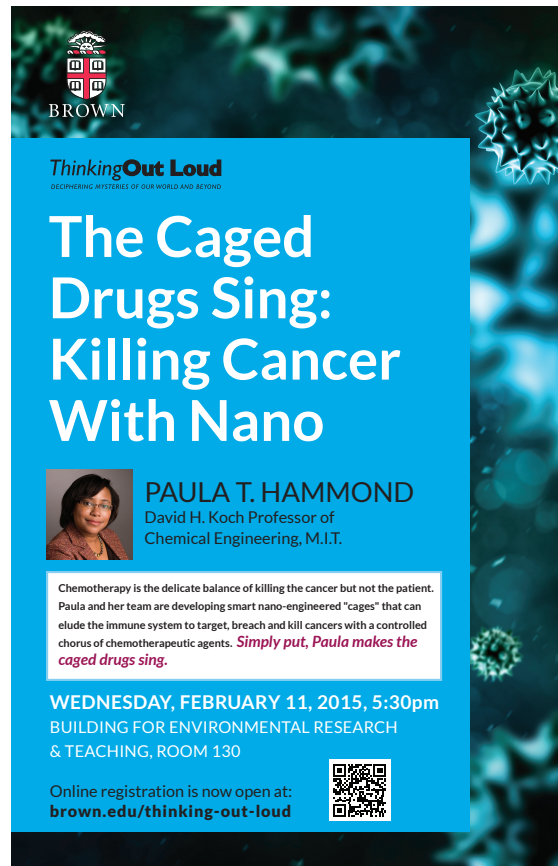
Searching For Life Basking in the Warmth of Other Suns

 **JOHN A. JOHNSON**
Professor of Astronomy at the Harvard-Smithsonian Center for Astrophysics

Three years ago, the notion of finding temperate rocky worlds around other stars was science fiction. Today we know that many bona fide Earth-sized planets are orbiting tiny suns right "next door." John's work brings us a step closer to quantitatively answering a question everyone has asked at some point in their lives, *Are we alone?*

MONDAY, OCTOBER 6, 2014, 5:30 pm
FRIEDMAN AUDITORIUM, METCALF RESEARCH BUILDING


Online registration is now open at:
brown.edu/thinking-out-loud

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ThinkingOut Loud
DECIPHERING MYSTERIES OF OUR WORLD AND BEYOND


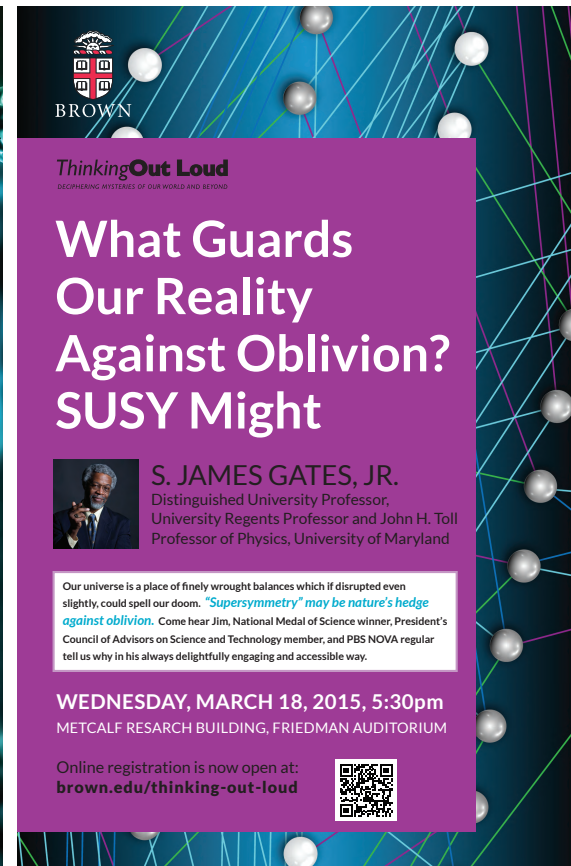
The Caged Drugs Sing: Killing Cancer With Nano

 **PAULA T. HAMMOND**
David H. Koch Professor of Chemical Engineering, M.I.T.

Chemotherapy is the delicate balance of killing the cancer but not the patient. Paula and her team are developing smart nano-engineered "cages" that can elude the immune system to target, breach and kill cancers with a controlled chorus of chemotherapeutic agents. *Simply put, Paula makes the caged drugs sing.*

WEDNESDAY, FEBRUARY 11, 2015, 5:30pm
BUILDING FOR ENVIRONMENTAL RESEARCH & TEACHING, ROOM 130


Online registration is now open at:
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What Guards Our Reality Against Oblivion? SUSY Might

 **S. JAMES GATES, JR.**
Distinguished University Professor, University Regents Professor and John H. Toll Professor of Physics, University of Maryland

Our universe is a place of finely wrought balances which if disrupted even slightly, could spell our doom. *"Supersymmetry" may be nature's hedge against oblivion.* Come hear Jim, National Medal of Science winner, President's Council of Advisors on Science and Technology member, and PBS NOVA regular tell us why in his always delightfully engaging and accessible way.

WEDNESDAY, MARCH 18, 2015, 5:30pm
METCALF RESEARCH BUILDING, FRIEDMAN AUDITORIUM

Online registration is now open at:
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High Impact ENSEMBLE Brilliance



STEMJazz



Target of Opportunity Program

Aegis: All STEM at Brown

Resources: $N > 5$ ToO Lines/Year

Target Identification: Department/APSI

Target Evaluation: Careful Archival Vetting

Dream Progress: Critical Mass + Community

Black/LatinX/Native STEM Faculty

2014

2021

Wayne (Full+)	Wayne (Full+)	Gabrielle (Asst)	Chris (Full)
Andrew (Assoc)	Andrew (Full)	Emilia (Assoc)	Stephon (Full)
Jason (Assoc)	Dan (Asst)	Greg (Assoc)	Jim (Full+)
Chad (Assoc)	Phyllis (Full+)	Lorin (Asst)	Theo (Asst)
Johnny (Assoc)	Johnny (Full)	Teddy (Asst)	Seny (Assoc)
Akilah (Asst)	Akilah (Assoc)	Sheldon (Asst)	Michelle (Asst)
Chanelle (Asst)	Chanelle (Assoc)	Bena (Asst)	Alex (Asst)
	Kimani (Full)	Tayla (Asst)	Diana (Assoc)
	Charles (Lecturer)	Jeff (Research)	Anarina (Research)
	Ron Aubert (Practice)		

Dream Progress: Creativity

STEMJazz researchers play their distinct disciplinary instruments in ensemble to weave startlingly new intellectual fabric across seemingly unrelated areas

Current riffs include:

SuperSymmetry and Evolutionary Biology
Genotype, Phenotype and Information Theory
Illuminating Women's Hidden Contribution to Historical Theoretical Population Genetics

Press Coverage:

(Wired 1/29/2019)
Molecular Informatics
(News from Brown 1/22/18)

Dream Progress: Breakthroughs



The Dream Reprise

Critical Mass + Community + URM/HUG Creativity
↓
Breakthroughs!

STEMJazz \Rightarrow **Selective Advantage** \Rightarrow **Institutional Change**