

Sujit K. Ghosh
Deputy Director

The Statistical and Applied Mathematical Sciences Institute

WHAT IS SAMSI?

- One of 8 NSF funded Math institutes
- A NSF grant awarded to Duke, NCState, and UNC





WHAT IS SAMSI?

Established in 2002





Current NSF funding period: 2012-2017



SAMSI'S MISSION

 Forge a synthesis of the statistical sciences and the applied mathematical sciences

- with disciplinary science
- to confront the very hardest and most important data- and model-driven scientific challenges



NEWS

NSF has recommended renewal of SAMSI for funding period 2017-2020

Searching for new Director and Deputy Director

Moving to new (nearby) building in July



SAMSI DIRECTORATE



Sujit Ghosh Deputy Director



Ilse Ipsen Associate Director



Tom Witelski Associate Director



Gordon Campbell
Operations Director



Richard Smith Director



WHAT CAN SAMSI DO FOR YOU?

Research

Year-long programs
Summer programs (1-3 weeks)
Topical workshops

Education and Outreach

Graduate student modeling workshop

Undergraduate workshops



RESEARCH PROGRAMS

Year-long collection of focused research activities

- Working groups (remote access)
- Research workshops
- Summer schools
- Participants
 - Visitors (few days a year)
 - **SAMSI Postdocs & Graduate Fellows**
 - National and international participants





Optimization



SAMSI 2016 - 2017 Program on Optimization



This year-long research program aims to produce a synergy between Mathematics and Statistics to produce ground breaking advances in:

- Optimization for large-scale statistical analysis
- Statistical approaches for the numerical solution of largescale optimization problems
- Applications of optimization

Opening Workshop: 22-26 August 2016

2-year postdoctoral fellowships 1-2 semester research fellowships

SAMSI Directorate Liaison Ilse Ipsen (NCSU) National Advisory Committee Liaisons Michael Mahoney (UC-Berkeley) Habib Najm (Sandia National Labs) Go to www.samsi.info/OPT for details. Send questions to: opt@samsi.info

Statistical, Mathematical & Computational Methods of Astronomy

samsi 2016-17 Program on Statistical, Mathematical and Computational Methods for Astronomy

The Statistical, Mathematical and Computational Methods for Astronomy Program focuses on the vast range of statistical and mathematical problems arising in modern astronomical and space sciences research, particularly due to the flood of data produced by both ground-based and space-based astronomical surveys at many wave-bands. To cope with the current and future needs of astronomy missions requires concerted efforts by cross-disciplinary collaborations involving astronomers, computer scientists, mathematicians and statisticians.

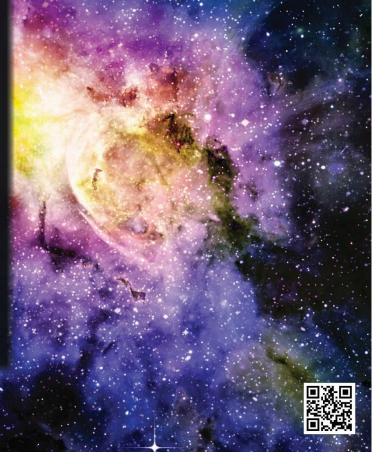
The research areas that form the main ingredients of the program include:

- Astronomical Simulations and Big data issues
- Exoplanets
- Functional Data Analysis
- Gravitational Wave Astrophysics
- High-performance computing for Bayesian inference and machine learning
- Lightcurve analysis/Time Domain Astronomy

For more details, visit www.samsi.info/ASTRO

Program Chair: G. Jogesh Babu (Penn State U.) SAMSI Directorate
Liaison:
Sujit Ghosh,ghosh@samsi.info
(SAMSI/NCSU)

National Advisory Committee Liaison: Michael Stein (U. Chicago)

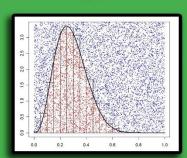




Quasi-Monte Carlo & High Dimensional Sampling Methods for Applied Mathematics



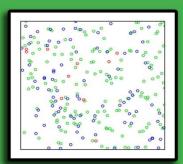
SAMSI 2017 - 2018 Program on Quasi-Monte Carlo and High-Dimensional Sampling Methods for Applied Mathematics

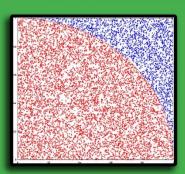


The goal of the SAMSI program is to explore the potential of QMC and other deterministic, randomized and hybrid sampling methods for a wide range of applications.

Opening Workshop: August 28 - September 1, 2017 2-year postdoctoral fellowships Research Fellowships

Visit: www.samsi.info/qmc or email: qmc@samsi.info





Program Leaders:

Art Owen (Stanford University)
Fred Hickernell (Illinois Institute of Technology)
Frances Kuo (University of New South Wales, Australia)
Pierre L'Ecuyer (Université de Montréal, Canada)

SAMSI Directorate Liasion: Ilse Ipsen (N.C. State University)

Mathematical and Statistical Methods for Climate & Earth Systems

samsi NSE-Duke-NCSU-UNC

SAMSI 2017 - 2018 Program on Mathematical and Statistical Methods for Climate and Earth

This year-long research program will study the interrelations among climate data, climate models and impacts with a view towards projecting future climate change and its impact on earth systems and the human population. Specific topics for working groups are expected to include:

- Remote sensing and climate databases
- Parameter estimation in climate models
- Climate Informatics
- Climate Extremes
- Climate and Health

AND MORE...









Opening Workshop: August 21-25, 2017

2-year postdoctoral fellowships Research fellowship opportunities

Steering Commitee:

Chris Jones (UNC-Chapel Hill)
Doug Nychka (National Center for Atmospheric Research)
Brian Reich (NCSU)

SAMSI Directorate Liaison:

Richard Smith (UNC-Chapel Hill)

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FUTURE RESEARCH PROGRAMS

2018-19:

- Model Uncertainty: Mathematical & Statistical (confirmed)
- Precision Medicine (confirmed)

2019-20:

Causal Inference (under consideration)



EDUCATION & OUTREACH

Three undergraduate workshops per year, one graduate

27-28 February 2017 Undergraduate Workshop

14-19 May 2017
Undergraduate Workshop (Interdisciplinary)

16-26 July 2017
Graduate Student IMSM Workshop



Proposing a SAMSI Program

https://www.samsi.info



ASTRO: SAMSI 2016-2017 ASTRO Year-long Program Beg SAMSI Blog: E&O Undergraduate Astrostatistics Workship Experience

Optimization: SAMSI Brings Together Researchers in Op

Workshop



Education And Outreach Programs And Workshops

Research Related Courses

Other Workshops And Post Doc Seminars

Proposing A New SAMSI Program





SAMSI SPONSORS PROGRAM

- Academic departments
- Research laboratories
- Businesses

Sponsorship funds help SAMSI to provide services not covered by NSF grant:

- Child care
- Field trips for undergraduate workshops
- Hardware + software for postdocs
- Social events (poster receptions)

Web page: SAMSI.info//Support SAMSI



SAMSI STAFF



Karem Jackson Workshop Specialist



Sue McDonald Workshop Coordinator



Rita Fortune Financial Analyst



Rick Scoggins
Communications Director



Thomas Gehrmann
NCSU Program Assistant



Communications & Marketing Minute!

- We **NEED** you to help tell the SAMSI Story!
- **SAMSI Social Media Platforms:**





https://www.facebook.com/SAMSI.Info

- SAMSI Blog: https://samsiatrtp.wordpress.com/
- Take plenty of pictures and enjoy this event!
- DON'T FORGET TO USE #WISO when talking about this WISO Workshop on Social Media!
- Communications questions: communications@samsi.info

#SAMSI Does

