Reconnect Workshop 2019 on *Cryptography*

Where: Champlain College, Burlington, Vermont
When: June 18 - 22, 2019

About this workshop: Cryptography Reconnect will expose faculty teaching undergraduates to current applications of mathematical and computational sciences and provide an opportunity for government or industry professionals to learn about recent research in related areas. The topic will be presented over the course of 3.5 days in a series of lectures and activities; participants will be involved in research activities that they and their students can continue with after the workshop.

Topic: Cryptography
Organizers: Margaret (Midge) Cozzens, Distinguished Professor / Associate Director, DIMACS Rutgers University
Melanie Brown, Mathematics Department, Champlain College
Greta Pangborn, Mathematics Department, St. Michaels College
Speakers: Steven Miller, Professor at Williams College
TBA

Cryptography explores how mathematical and computational tools can be developed to meet current and future encryption and privacy need. The invention of RSA and Rabin's cryptosystem in the late 1970's pushed cryptologic technology forward and laid the foundation for many of the cryptographic methods in use today. Armed with a variety of new techniques, cryptography is once again on the forefront of important discoveries aimed at addressing new challenges. A fast-growing world-wide trend is to view storage and computation as commodities raising questions such as: how to perform computations on encrypted data stored in multiple locations; how to outsource computations to a third party and verify the correctness of the results with minimal overhead; how to provide selective access to parts of the encrypted data on a need-to-know basis; and how to ensure the availability of data when it is needed.

The workshop will provide background in basic cryptographic techniques from ciphers to codes, the basics of RSA, steganography, and quantum cryptography. It will address the current status of the above referenced questions.

Registration fees, lodging, meals and travel: *Accepted participants from US academic institutions*: registration, lodging in a single room, and meals will be provided at no charge. Limited funds are expected to be available to provide partial support for travel and for international participants.

Deadline for Applications is April 2, 2019 or until all slots are filled. Applications must be submitted online and will be reviewed as they are received. A link to the online application will be available by Feb 1, 2019 under the Call for Participation on the workshop webpage (http://dimacs.rutgers.edu/events/details?eID=1093).

Sponsorship: This 2019 Workshop is presented under the auspices of the National Science Foundation grant for *A Special Focus on Cryptography* to DIMACS.

For more information: Isha Deen-Cole or Midge Cozzens (ishadc@dimacs.rutgers.edu or mcozzens@dimacs.rutgers.edu) or visit the Reconnect web page on the DIMACS website.