

# Conference on Effects of Genome Structure & Sequence on the Generation of Variation and Evolution

DIMACS, Rutgers University, New Brunswick, NJ **August 9 – 11, 2011**

**Opportunity for Graduate Student & Postdoc Participation**



## About the Topic:

The structure of DNA is not monotonous, but rather varies along its sequence, sometimes dramatically so. Such variation in structure leads to sequence-dependent variations in the fidelity of DNA copying and repair. That the probability of distinct classes of mutations varies along a DNA sequence has implications for evolutionary theory because selection acts on heritable variation when this variation affects fitness. Highly mutable sequences have, in fact, evolved in genome regions such as those encoding pathogen coats where increased diversity in a population favors survival. The fidelity of DNA replication and repair is both sequence-dependent and affected by the activities of multiple enzymes (which can be induced by environmental or cell-type specific factors).

Furthermore, it is becoming increasingly obvious that information is represented in DNA in forms that are not obvious when DNA is analyzed as if it actually were comprised of a sequence of letters. Often it is the conformation of DNA (or RNA) or the relationship among sequences that carries the information.

## The Conference:

This conference will bring together a broad interdisciplinary group of researchers to explore the impact of increasing understanding of DNA structure, repair, replication, and organization on interrelated subjects ranging from evolution to dependence of the effect of mutagens on environmental and sequence context, to non-canonical forms of information representation in genomes.

## Registration and call for posters:

Online registration can be found at <http://dimacs.rutgers.edu/Workshops/GenomeStructure>

Contact Nicole Clark ([nicolec@dimacs.rutgers.edu](mailto:nicolec@dimacs.rutgers.edu)) for information

## Call for Posters:

The sponsors seek submission of posters on original and unpublished research describing the effects of genome structure and sequence on the generation of variation, and their implications for evolution, including (but not limited to) rapidly evolving genomic regions, sequence-context dependence of DNA conformation and mutation; inducible focused variation such as in the immune response, meiosis, and pathogen coat variation; genetic variation under stress; regulation of and by transposable elements and insertion site preferences; recognition of sites of RNA editing, folding and splicing; evolution of genomes and tumors. If you would like to contribute a poster, please send title/abstract to Nicole Clark at [nicolec@dimacs.rutgers.edu](mailto:nicolec@dimacs.rutgers.edu) no later than **July 15, 2011**. You will be notified of acceptance of your poster as soon as possible after you submit it. For questions or more information, see the website or contact Eugene Fiorini, Associate Director of DIMACS and Program Coordinator ([gfiorini@dimacs.rutgers.edu](mailto:gfiorini@dimacs.rutgers.edu)).

## Graduate Student and Postdoc Support

Financial support is available to graduate students and postdocs. Review of applications begins **May 15, 2011** and will continue until all slots are filled.

Conference information is available at: <http://dimacs.rutgers.edu/Workshops/GenomeStructure>

The Workshop is organized by the Center for Discrete Mathematics and Theoretical Computer Science (DIMACS with funding provided by the US National Science Foundation, the International Union of Biological Sciences, and New England Biolabs.

