

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
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IMADA COLLOQUIUM

Shedding Light on the Dark Matter of the Genome: Discoveries in the World of Non-Coding RNAs

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Abstract:

High-throughput transcriptomics has demonstrated beyond reasonable doubt that essentially the complete human genomes is transcribed RNAs that are processed into a plethora of distinct products with their own specific spatiotemporal expression patterns. Protein-coding mRNAs account only for a fraction of total RNA mass and a tiny fraction of RNA diversity. Small RNAs such as microRNAs and their relatives are only one among many types of RNAs. Often dismissed as "transcriptional noise" or "junk RNA", there is rapidly mounting evidence that this "dark matter of the genome" has important regulatory functions in particular in the context of differentiation. Recent discoveries established, for instance, a strong link between mRNA-like ncRNAs and chromatin regulation, and provide evidence for wide-spread chemical modifications of RNAs. I will give a brief overview of recent highlights, indicate the important contribution of computational approaches in this context, discuss the implications of noncoding RNAs for the future of biomedical research.

Host: Daniel Merkle