UNIVERSITY OF DELAWARE

CENTER FOR BIOINFORMATICS & COMPUTATIONAL BIOLOGY

BIOINFORMATICS SEMINAR

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UNIVERSITY OF MARYLAND

A FRAMEWORK FOR THE ANALYSIS OF HERITABLE INFORMATION

The form and function of organisms are mostly preserved from one generation to the next. This preservation relies on heritable information transmitted in molecules that are replicating stores (e.g. genome sequence) and in the arrangements of molecules that are cycling stores (e.g. regulators assembled around a gene sequence). Both stores must be assembled in every bottleneck stage between successive generations into cell codes that specify the development of organisms in each generation in a given environment. The analysis of cell codes can thus illuminate how a living system evolves and how the storage of heritable information itself evolves. I will present a framework for such analysis of all heritable information and discuss its utility.

BIOGRAPHY

Dr. Antony Jose is a biologist working on heredity. He is an Associate Professor in the Cell Biology and Molecular Genetics Department at the University of Maryland and a National Academy of Sciences Kavli Fellow. He joined Maryland in 2011 after a PhD from Yale University and postdoctoral research at Harvard University. His research group is currently supported by grants from the National Institutes of Health. They used the simple nematode C. elegans to demonstrate that RNA from neurons can cause specific gene silencing that lasts for more than 25 generations. They were the first to visualize extracellular RNA crossing generational boundaries in an animal. Their current work addresses how information is encoded in a cell and how this cell code is passed on from one generation to the next. These findings have implications for our understanding of the origins of inherited diseases, the course of evolution, and the synthesis of new life.

CBCB SEMINAR

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