

Thursday 8th March 4pm – Maynooth University Psychology Department

Dr. Clare Kelly (Trinity College Dublin)

fMRI Functional Connectomics: Progress and Promise



Clare studied Psychology at Trinity College Dublin and also pursued her graduate work there, graduating with a PhD in Cognitive Neuroscience. Following this she moved to the New York University Child Study Center, first as a Postdoctoral Fellow, then as an Associate Research Scientist, and ultimately as an Assistant Professor. In January of 2015, she returned to Trinity College to become an Ussher Assistant Professor of Functional Neuroimaging, working at Trinity College

Institute of Neuroscience (TCIN), with a joint appointment in the School of Psychology and Department of Psychiatry at the School of Medicine. At TCD, her lab continues to forge a research mission aimed at elucidating the neurodevelopmental bases of psychiatric disorders through the application and refinement of frontier functional and structural neuroimaging methods. Her research vision is to trace the roots of mental health difficulties in the developing brain, so that at-risk individuals can be identified at the earliest possible point, allowing intervention to divert their developmental trajectory away from illness towards health.

Abstract: Task-independent or “resting state” functional magnetic resonance imaging (fMRI) approaches (functional connectomics; FC) have revolutionized our understanding of brain functional organisation. A key advantage of the approach is that it is feasible in populations in which conventional task-based fMRI is challenging or inapplicable (e.g., infants and young children; neurodegenerative disease); over the past decade, resting state FC has driven significant advances in our understanding of brain development and toward the goal of identifying reliable biomarkers of psychiatric illness. Finally, resting state FC offers the promise of a truly translational tool, given the remarkable correspondence between functional circuits identified in the human, macaque, and rodent. In this talk I will provide an overview of progress in the field fMRI-based functional connectomics, and will discuss the promise of the approach for providing insights into how disturbances in typical brain development give rise to psychiatric and neurological disorders.