



Département de psychiatrie
Centre de neurosciences psychiatriques
Site de Cery
CH-1008 Prilly - Lausanne

Centre de Neurosciences Psychiatriques

CNP SEMINAR

ANNOUNCEMENT

Thursday, July 2, 2015, 10 a.m.

"Topology: a new mathematical toolbox for neuroscience"

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Topology is that branch of mathematics concerned with notions of proximity and connectivity. I will present two types of applications of topology to neuroscience. I will first discuss topological data analysis, which is a highly efficient tool for pattern recognition in large data sets, such as those arising in genomics or imaging. I'll then sketch the roles topology can play in analyzing both the structural and the functional network in the brain.

Selected Publications:

1. Gunnar Carlsson (2014). Topological pattern recognition for point cloud data. Acta Numerica 23:289-368
2. Romano et al. (2014). Topological methods reveal high and low functioning neuro-phenotypes within Fragile X syndrome. Human Brain Mapping 35:4904-4915