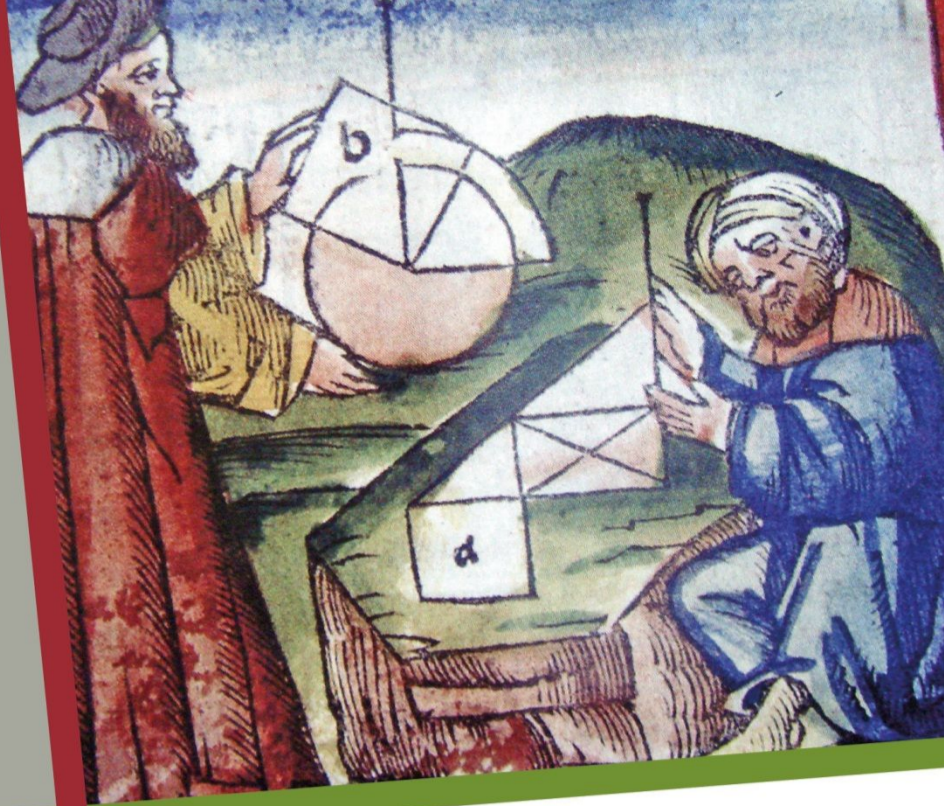UNIVERSITÀ DEGLI STUDI
DI TRENTO
Dipartimento di Matematica

SEMINARI

Friday, February 16 – at 11:00 a.m.

Room A205 – Povo1, Via Sommarive 5

Sara Wade
(University of Edinburgh)

Bayesian Cluster Analysis: An Application to Investigate Neuronal Connectivity Patterns

Abstract
Bayesian cluster analysis offers substantial benefits over algorithmic approaches by providing not only point estimates but also uncertainty in the clustering structure and patterns within each cluster. In this talk, I will provide an overview of Bayesian cluster analysis, and demonstrate its advantages in an application to cluster neurons and discover unique neuronal projection patterns, in order to understand the nature of the projections that the entorhinal cortex makes to other neocortex regions. Data is collected through multiplexed analysis of projections by sequencing (MAPseq), which provides high-throughput mapping of projections at the single-neuron resolution. A Bayesian clustering approach is developed that can integrate multiple MAPseq datasets collected across mice and accurately reflect the overdispersed count nature of the data. Lastly, I will describe general tools that we are developing to describe and visualize the posterior over the clustering structure in the Bayesian approach.

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