

**PhD research topic proposal**  
**BME, Doctoral School of Mathematics and Computer Science**

**Name of supervisor :**

**László Négyessy**

**Degree:**

PhD

**Title of the topic:**

**Modelling the mesoscale organization of the network of the cerebral cortex**

**Short description:**

Goal: to derive a topologically faithful mesoscale representation of the large-scale (area level) cortical network and explore the characteristics of the mesoscale network to gain a deeper understanding of cortical functioning at the level of neuronal populations.

**Requirements:**

Background in graph theory, statistics,  
Strong command of programming in Python or R,  
Knowledge, experience in C, C++, C# or Java is advantage  
Comfortable and quick in reading scientific publications

**Contact:**

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**Place of work:**

Wigner Research Centre for Physics, Hungarian Academy of Sciences,  
Department of Computational Sciences,  
Theoretical Neuroscience and Complex Systems Research Group

**Statement:** *The conditions of the research above are satisfied, the theme is confirmed by the Head of the Department/Institute*