

# PhD research topic proposal (template)

BME, Doctoral School of Mathematics and Computer Science

**Name and degree of supervisors:** Bálint Tóth, DSc, corresponding member of the MTA (Rényi Institute, external supervisor), Balázs Bárány, PhD (internal advisor)

**Are you willing to supervise Stipendium Hungaricum applicants?**

No

**Title of the topic:** The Pólya web and related problems

**Short description:**

In the proposed topic, we intend to study several properties of the joint, coupled realisations of coalescing random walks, especially the Pólya urns and coalescing Yule processes. The goal is to understand the discrete local properties and the asymptotic scaling limits. The problems are closely related to the Brownian web and similar objects.

**Requirements:** Advanced Probability Theory, Analysis,

**Contact:**

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**Place of work:**

Department of Stochastics, Budapest University of Technology and Economics