

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

**Name of supervisor :**

**Balázs Bárány**

**Degree:**

PhD

**Title of the topic:**

**Dimension theory of dynamical systems**

**Short description:**

Benoit Mandelbrot described the fractal sets as "irregular and fragmented patterns around us". Fractal sets in mathematics can be constructed by using dynamical systems, iterated function systems, or random walks. One of the cardinal questions in fractal geometry is understand the structure of these geometric object, describe their regularity properties, and measure how large these objects are in the sense of measure and dimension.

The PhD student will work on the dimension theory of such objects and will learn the most recent techniques in the field.

**Requirements:**

ergodic theory, measure theory

**Contact:**

Phone:

E-mail:

balubs@math.bme.hu

**Place of work:**

Department of Stochastics, Budapest University of Technology and Economics

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