Fractals and geometric measure theory
II. Semester 2019/20

Neptun code: BMETE95MM06
Lecture: Dr. Balázs Bárány

Prerequisites: This subject is for MSc and PhD students, there are no further prerequisites.

Topics:

- Introduction to Iterated Function Systems
- Basics of geometric measure theory
- Projection and slicing theorems
- Self-similar sets without overlaps, dimension and measure
- Local dimension, multifractal analysis
- Overlapping self-similar set, transversality method
- Self-affine sets
- random Cantor sets and Mandelbrot percolation
- Brownian motion, dimension and measure of graph and path

Requirements: On the last week of the semester, there will be a midterm test, which covers the theoretical part of the complete course. The midterm test can be replaced by a mini-lecture, which is worked out by the student on his/her own about a recent paper in the field. Such paper can be asked from the lecturer during the semester.

Grading:

$x<40\%$	fail	(elégtelen (1))
$40\%\le x<55\%$	pass	(elégséges (2))
$55\%\le x<70\%$	satisfactory	(közepes (3))
$70\%\le x<85\%$	good	(jó (4))
$85\%\le x$	excellent	(jeles (5))

Balázs Bárány

13th of January, 2020.