THU/P3
11:30–11:50

Topological and geometric properties of certain classes of Sierpiński carpets

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Sierpiński carpets are planar self-similar objects that are constructed in the following way: start with the unit square, divide it into $n \times n$ congruent smaller subsquares and cut out the interior (with respect to the topology induced by the Euclidean metric) of m of them, corresponding to a given $n \times n$ pattern. This construction step is repeated with all the remaining subsquares ad infinitum. The resulting limit set is a fractal of Hausdorff and box-counting dimension $\log(n^2 - m)/\log(n)$, called a *Sierpiński carpet*. In this talk we present results on geometric and topological (connectedness) aspects of different classes of Sierpiński carpets or generalisations thereof:

1. *limit nets sets*, which are "well-distributed" fractals,
2. *labyrinth fractals*, which are dendrites with infinite distances between points lying on them, and
3. *generalised Sierpiński carpets*, which are defined by means of sequences of patterns.

The results on labyrinth fractals and generalised Sierpiński carpets stem from joint work with Bertran Steinsky (FWF-project P20412-N18).

[1] L.L. CRISTEA: On the connectedness of limit net sets. *Topology and its Applications*. Vol. 155, **16** (2008), 1808-1819.
[2] L.L. CRISTEA, B. STEINSKY: Curves of Infinite Length in 4×4-Labyrinth Fractals. *Geometriae Dedicata*. (2008) (already available online).
[3] L.L. CRISTEA, B. STEINSKY: On totally disconnected generalised Sierpiński carpets. Submitted for publication (2008).