



## Mathematics and CS Seminar

# The fractal nature of the Abelian Sandpile

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**Host: Herbert Edelsbrunner**

The Abelian Sandpile is a simple diffusion process on the integer lattice, in which configurations of chips disperse according to a simple rule: when a vertex has at least 4 chips, it can distribute one chip to each neighbor. Introduced in the statistical physics community in the 1980s, the Abelian sandpile exhibits striking fractal behavior which long resisted rigorous mathematical analysis (or even a plausible explanation). We now have a relatively robust mathematical understanding of this fractal nature of the sandpile, which involves surprising connections between integer superharmonic functions on the lattice, discrete tilings of the plane, and Apollonian circle packings. In this talk, we will survey our work in this area, and discuss avenues of current and future research.

**Wednesday, March 21, 2018 02:00pm - 03:00pm**

IST Austria Campus Mondi Seminar Room 2, Central Building



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: <https://ist.ac.at/en/campus/how-to-get-here/> The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.