Multidimensional continued fractions and S-adic systems

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In the preprint "Multidimensional continued fractions and symbolic codings of toral translations" (https://arxiv.org/abs/2005.13038, joint work with Valérie Berthé and Jörg Thuswaldner), we study natural codings of toral translations that are S-adic symbolic dynamical systems where the sequences of substitutions have incidence matrices coming from multidimensional continued fraction algorithms. (These are generalisations of Sturmian shifts to higher dimensions.) In this talk, we discuss open problems in this context, for example:

- When are the assumptions of our theorems satisfied, in particular which multidimensional continued fraction algorithms have negative second Lyapunov exponents?
- Is it possible to weaken the assumptions?
- Can we say something about the exceptional sets in our almost everywhere statements and about non-compact Rauzy fractals?
- What are the combinatorial properties of the S-adic sequences (complexity, balancedness, ...)?