Self-similar fragmentations with negative index near their extinction time

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The self-similar fragmentations (introduced by Bertoin) are a nice class of Markovian fragmentation processes. We have a collection of blocks, which gradually split apart as time goes on. The fundamental idea is that every block should split in ``the same way'' (i.e. randomly, but each time according to the same distribution). However, the rate at which splitting occurs is allowed to depend on the size of the block in the sense that the rate is given by the size of the block to some power alpha, called the index of self-similarity. In this talk, I will focus on the case where alpha is negative, which means that smaller blocks split faster than larger ones. This gives rise to the phenomenon of loss of mass, whereby the smaller blocks split faster and faster until they are reduced to ``dust''. Indeed, it turns out that the whole state is reduced to dust in a finite time, almost surely. A natural question is then: how does the process approach its extinction time? In this talk, I will discuss some partial answers to this question. This is joint work with Bénédicte Haas (Paris-Dauphine).