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Behaviour near the extinction time in stable fragmentation processes

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The stable fragmentations are particularly nice examples of the self-similar fragmentation processes introduced by Bertoin. They are derived by looking at the masses of the subtrees formed by discarding the the parts of a stable continuum random tree below height t , for $t \geq 0$. Such a fragmentation possesses a parameter α which lies between $-\frac{1}{2}$ and 0, called the index of self-similarity; heuristically, any block of mass m splits at a rate proportional to m^α . Since α is negative, this means that smaller blocks split faster than larger ones. Indeed, small blocks split faster and faster until they are reduced to dust (blocks of size 0). The whole state is entirely reduced to dust in some almost surely finite time ζ , called the extinction time. We give a detailed limiting description of the distribution of a stable fragmentation of index α as it approaches its extinction time.

This is joint work with Benedicte Haas of Universite Paris-Dauphine.