# THE MASS OF SUPER-BROWNIAN MOTION UPON EXITING BALLS AND SHEU'S COMPACT SUPPORT CONDITION

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**Abstract**: We study the mass of a d-dimensional super-Brownian motion as it first exits an increasing sequence of balls. The mass process is a time-inhomogeneous continuous-state branching process, where the increasing radii of the balls are taken as the time-parameter. We characterise its time-dependent branching mechanism and show that it converges, as time goes to infinity, towards the branching mechanism of the mass of a one-dimensional super-Brownian motion as it first crosses above an increasing sequence of levels. Our results identify the compact support criterion in Sheu (1994) as Grey's condition (1974) for the aforementioned limiting branching mechanism. This is based on joint work with Marion Hesse.