

**A REPRESENTATION OF EXCESSIVE FUNCTIONS AS EXPECTED
SUPREMA**

**Hans Föllmer
Thomas Knispel**

Abstract: For a nice Markov process such as Brownian motion on a domain in \mathbb{R}^d , we prove a representation of excessive functions in terms of expected suprema. This is motivated by recent work of El Karoui [5] and El Karoui and Meziou [8] on the max-plus decomposition for supermartingales. Our results provide a singular analogue to the non-linear Riesz representation in El Karoui and Föllmer [6], and they extend the representation of potentials in Föllmer and Knispel [10] by clarifying the role of the boundary behavior and of the harmonic points of the given excessive function.

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