BRANCHING BROWNIAN MOTION AND THE EBERT-VAN SAARLOOS EXPANSION

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Abstract: We consider the time evolution of the median, $m(t)$, of the right-most particle distribution in a branching Brownian motion where particles undergo binary branching at rate β. In particular, we discuss a probabilistic approach to some large time asymptotics given by the Ebert-van Saarloos expansion

$$m(t) = \sqrt{2\beta}\,t - \frac{3}{2\sqrt{2\beta}}\log t + \theta - \frac{2\sqrt{\pi}}{\beta\sqrt{2}}\,t^{-1/2} + O\left(t^{-1}\right) \qquad \text{as} \quad \text{t} \to \infty,$$

where θ is some constant.
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