

# Workshop of the ERC project MUSEUM : MUlti- Scale Eco-Evolutionary population dynaMics



ID de Contribution: 5

Type: **Non spécifié**

## **Canceled : Old and new results on time-inhomogeneous branching Brownian motion**

*mercredi 7 janvier 2026 16:45 (45 minutes)*

Time-inhomogeneous Branching Brownian motion (BBM and its discrete counterpart, time-inhomogeneous branching random walks (BRW) may be considered as models for populations undergoing reproduction and dispersion, in an environment that changes slowly over a large time scale  $T$ . They have also been studied intensely by physicists and mathematicians as toy models for so-called spin glasses. In this talk, I will first recall classic results (limiting free energy, asymptotics of maximum) which exhibit an interesting explicit dependence on the environment. I will then present recent results. In particular, I will present a study with Alexandre Legrand on a variant of the model with a finite number  $N$  of particles, for which we are able to obtain the second-order correction term for its propagation speed. In particular, this correction term exhibits an interesting phase transition when  $N = \exp(T^{1/3})$ . Based on <http://arxiv.org/abs/2402.04917> .

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