Selection and mutation in a shifting and fluctuating environment

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Résumé

We study the evolutionary dynamics of a phenotypically structured population with asexual reproduction in a changing environment, where the fitness landscape varies with a linear trend but in an oscillatory manner. We first study the long time behavior of the solution to this problem. Next, using an approach based on Hamilton-Jacobi equations we study asymptotically such long time solutions when the effects of the mutations are small. Via some examples and a comparison with a biological experiment, we show how our method can be used to determine the effect of the oscillations of the environment on the performance of the population or its ability to follow the climate shift.
This talk is based on joint works with Susely Figueroa Iglesias.

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