Estimation statistique pour des modèles de population structurés en âge

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Motivated by improving mortality tables from human demography databases, we investigate statistical inference of a stochastic age-evolving density of a population alimented by time inhomogeneous mortality and fertility. Asymptotics are taken as the size of the population grows within a limited time horizon: the observation gets closer to the solution of a PDE (a inhomogeneous version of the Von Foerster Mc Kendrick equation) and the difficulty lies in controlling simultaneously the stochastic approximation to the limiting PDE in a suitable sense together with an appropriate parametrisation of the anisotropic solution. In this setting, we prove new concentration inequalities that enable us to implement the Goldenshluger-Lepski algorithm and derive oracle inequalities. This is a joint work with A. Boumezoued and P. Jeunesse.

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