1096-60-561 **Sandra Cerrai*** (cerrai@math.umd.edu), Department of Mathematics, University of Maryland, College Park, MD 20742. *"On the quasi-potential for 2-D Navier-Stokes equations perturbed by space time white noise".*

We are dealing with the Navier-Stokes equation in a bounded regular domain D of $\mathbb{R}^2$, perturbed by an additive Gaussian noise $\partial w^{Q_\delta}/\partial t$, which is white in time and colored in space. We assume that the correlation radius of the noise gets smaller and smaller as $\delta \searrow 0$, so that the noise converges to the white noise in space and time. For every $\delta > 0$ we introduce the large deviation action functional $S^\delta_{0,T}$ and the corresponding quasi-potential U_δ and, by using arguments from relaxation and Γ-convergence we show that U_δ converges to $U = U_0$, in spite of the fact that the Navier-Stokes equation has no meaning in the space of square integrable functions, when perturbed by space-time white noise. Moreover, in the case of periodic boundary conditions the limiting functional U is explicitly computed.

Finally, we apply these results to estimate of the asymptotics of the expected exit time of the solution of the stochastic Navier-Stokes equation from a basin of attraction of an asymptotically stable point for the unperturbed system.

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