ON THE ASYMPTOTIC BEHAVIORS OF SOLUTIONS TO STOCHASTIC OBSTACLE PROBLEMS

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Obstacle problems are well known in the literature of applied mathematics and lead to numerous applications. My objective is to present some results on the qualitative properties of the solution of a stochastic T-monotone obstacle problem studied in [2]. First, the small noise large deviation principle (LDP) where the difficulty lies in dealing with the singularities caused by the obstacle. The idea is to use Lewy-Stampacchia's inequalities estimates to manage the singularities caused by the obstacle. Then, using some recent results in the literature to establish LDP for the corresponding stochastic dynamics. Next, I will discuss also the existence of invariant measures associated with this type of dynamics. This talk will be based on a submitted work and another in progress.

References

[1] Y. Tahraoui. *Large deviations for obstacle problems with non linear T-monotone operators and multiplicative noise.* "submitted"

[2] Y. Tahraoui and G.Vallet. *Lewy-Stampacchia's inequality for a stochastic T-monotone obstacle problem.* Stoch PDE: Anal Comp 10, 90-125 (2022). `https://doi.org/10.1007/s40072-021-00194-x` .