# Séminaire de Probabilités et Statistique

## Mardi 24 Novembre à 14h00
Laboratoire Dieudonné
Salle de conférence - LJAD

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*Non-uniqueness for reflected rough differential equations*

The solution to a reflected SDE is a stochastic process which is constrained to take values in a spatial domain D. When the underlying signal is a semimartingale, the well-posedness of these equations has been known since the 80s. More recently, Lyons' rough path theory allows to define integrals (driven by irregular signals) in a very robust way, which gives a notion of solution to SDE beyond the semimartingale framework. A natural question is whether these methods can be applied to equations with reflexion. Rather general existence results have been obtained by Aida, but uniqueness is only known to hold in special cases (if the noise is regular enough, or in a one-dimensional setting). In this talk, I will discuss a recent counterexample which shows that, in general, a multidimensional reflected equation may have multiple solutions if the underlying signal is rough enough. For this example, I will show a precise criterion on continuity moduli for which uniqueness holds, and I will also discuss the case of fractional Brownian motion.