1143-60-8   **Samy Tindel*** (`stindel@purdue.edu`), Department of Mathematics, 150 N. University Street, West Lafayette, IN 47907, and **Yanghui Liu** (`liu2048@purdue.edu`), Department of Mathematics, 150 N. University Street, West Lafayette, IN 47907. *Some limit theorems obtained by rough paths techniques.* Preliminary report.

In this talk we focus on a series of results concerning p-variation limits, as well as Itô type formulas in law for Gaussian processes. This line of research has been quite active in the recent past in the stochastic analysis community. Most of the techniques involve integration by parts, Stein's method, and other Malliavin calculus tools. This yields a series of limitations on the nature of the results, as well as the dimension of the Gaussian process at stake. Our aim is to show how those questions can possibly be handled in a more natural way thanks to rough path type techniques. More specifically we will show how to transfer limits taken on a Gaussian signature to limits involving controlled processes, by means of the typical expansions of the rough paths theory. Applications of this rather simple trick include the aforementioned p-variations and Itô type formulas, as well as central limit theorems for numerical schemes. (Received April 30, 2018)