Introduction to the theory of regularity structures:
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Singular stochastic PDEs (singular SPDEs) are partial differential equations containing a random term with very bad regularity properties. One famous example is the so called KPZ equation given via $\partial_t h = \partial_x x h + (\partial_x h)^2 + \xi$, where ξ denotes a space time white noise. This is a random field $\xi = \{\xi(t,x) : t \geq 0, x \in\}$ consisting of i.i.d gaussian random variables that has extremely bad continuity properties. Until very recently it seemed completely hopeless to come up with a method that allows to study well posedness of the KPZ equation let alone for a class of singular SPDEs. However, around the year 2014 Martin Hairer developed a theory that revolutionized our understanding of such equations, and that created a research field on its own. For example it follows from his theory that the more honest way of writing the KPZ equation would be $\partial_t h = \partial_x x h + (\partial_x h)^2 + \xi - \infty$. The aim of this course is two-fold. First I want to explain why the infinity term is natural and necessary in some cases. Second I want to present the main ingredients of the theory of Regularity structures.

Segunda 16, Quarta 18 e Sexta 20 de Agosto as 16 hs

Segunda 23, Quarta 25 de Agosto as 16 hs

Link para a primeira aula via Zoom :
https://us06web.zoom.us/j/86556535639?pwd
=YUYxbGsrZCszZVA3aUNITGUyV3dXUT09,
Meeting ID: 865 5653 5639, Passcode: 016142

Link para as outras aulas serão divulgados em https://www.ime.unicamp.br/ssde/