DISPERSIVE PDE SPRING '25

Lectures: Mondays 15.15 - 17.15, MA B1 11.

exercises: Wednesdays 8.15 - 10.15, MA A1 12

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internet link to group: https://pde.epfl.ch/

Rough list of topics covered:

-Introduction: examples of dispersive PDE, such as Schrodinger and wave equations.

-Basic facts from the linear theory: point-wise decay, Fourier methods.

-Elements from harmonic analysis, Strichartz estimates.

-Local well-posedness of basic nonlinear models; well-posedness typology.

-Conservation laws, global well-posedness.

-Geometric models, such as wave maps.

Textbooks: the course will provide lecture notes, but you can complement it with books such as T. Tao's textbook *Nonlinear dispersive equations. Local and global analysis, CMBS 106, eds: AMS, 2006*, T. Cazenave's *Semilinear Schrodinger equations, CLN 10, eds: AMS, 2003*, as well as J. Shatah and M. Struwe's *Geometric Wave Equations, Courant Lecture Notes, eds: AMS, 2000.*

Exams: There will be an oral exam at the end. Exercises will be offered weekly, and you can discuss these with the assistant during the weekly exercise sessions. The exercises do not count toward the final grade.