



SEMINÁRIO DE EQUAÇÕES DIFERENCIAIS PARCIAIS

Dynamical Systems and Applications to PDEs in Non-Cylindrical Domains

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Sala 321 do IMECC

Resumo: In this talk, we introduce the concept of dynamical systems in time-dependent phase spaces, highlighting key results related to pullback dynamics. We then explore how this framework connects to partial differential equations defined on non-cylindrical domains. Well-known examples will be discussed, including applications to parabolic equations such as the Navier-Stokes equations and nonlinear reaction-diffusion systems.

References

- [1] H. Cui, R. Figueroa López, H. López-Lázaro, J. Simsen, Multi-valued dynamical systems on time-dependent metric spaces with applications to Navier-Stokes equations, *Mathematische Annalen*, (2024) 1-56.
- [2] P.E. Kloeden, P. Marín-Rubio, J. Real, Pullback attractors for a semilinear heat equation in a non-cylindrical domain, *Journal of Differential Equations*, **244** (8) (2008), 2062-2090.
- [3] P. E. Kloeden, J. Real, C. Sun, Pullback attractors for a semilinear heat equation on time-varying domains, *J. Differential Equations*, **246** (12) (2009), 4702-4730.