

Global propagation of analyticity and unique continuation for semilinear waves

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In this talk, we explore the global propagation of analyticity and unique continuation for solutions to the semilinear wave equation with analytic nonlinearity. We begin by discussing how an analyticity-in-time regularization can be achieved in a finite-time setting for solutions that vanish on a small subset satisfying the Geometric Control Condition (GCC). The proof combines tools from control theory with ideas due to Hale and Raugel on the regularity of attractors in dynamical systems. We then examine a consequence of this result: a unique continuation property under the natural GCC. If time permits, we will emphasize that the finite-time analyticity regularization was actually obtained in an abstract framework, allowing us to explore similar results for other PDEs.

These results are part of a joint work with C. Laurent (CNRS, LMR).

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