Stability and Global Questions for Biharmonic Schrödinger Equation

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In this talk we first present some results of controllability and stabilizability of a class of distributed parameter control system described by the fourth order nonlinear Schrödinger on the torus $\mathbb{T}$ with internal control acting on a sub-domain ω of T. More precisely, by certain properties of propagation of compactness and regularity in Bourgain spaces for the solutions of the associated linear system, we will show that the system is globally exactly controllable and globally exponentially stabilizable.

Finally, we present works in progress about the controllability of the biharmonic nonlinear Schrödinger equation in half-line $\mathbb{R}^+$, star graphs and manifolds.

References

[1] R. A. Capistrano-Filho and M. Cavalcante, *Stabilization and control for the biharmonic Schrödinger equation*, submitted.

[2] R. A. Capistrano-Filho, M. Cavalcante and F. A. Gallego, *Lower regularity solutions of the biharmonic Schrödinger equation in a quarter plane*, submitted.