

# A Brezis-Nirenberg type result for a fourth order BVP

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In this lecture we discuss a Brezis-Nirenberg type result for a fourth order boundary value problem in the sub-critical regime. This result is motivated by the seminal and celebrated result due to Brezis and Nirenberg in [1].

We also discuss some recent results concerned with existence and regularity of solutions to a system of second order PDEs with Dirichlet boundary conditions. These aspects are a work in collaboration with Bernhard Ruf (Università Statale di Milano) and Carlos Vélez (Universidad Nacional de Colombia Sede Medellín).

## References

- [1] H. BREZIS, L. NIRENBERG.  $H^1$  versus  $C^1$  local minimizers. *C. R. Acad. Sci. Paris Sér. I Math.*, **317**(5):465-472, 1993.