

# STATIONARY SCHRÖDINGER EQUATIONS IN $\mathbb{R}^2$ WITH UNBOUNDED OR VANISHING POTENTIALS AND INVOLVING CONCAVE NONLINEARITIES

FRANCISCO SIBERIO B. ALBUQUERQUE \*

In this talk, we study the existence and multiplicity of solutions for the following class of stationary nonlinear Schrödinger equations:

$$-\Delta u + V(|x|)u = Q(|x|)f(u) + \lambda g(x, u), \quad x \in \mathbb{R}^2,$$

where  $\lambda$  is a nonnegative parameter,  $V$  and  $Q$  are unbounded or decaying radial potentials, the nonlinearity  $f(s)$  may exhibit exponential growth and  $g(x, s)$  is a concave term. The approach used here is based on a version of the Trudinger-Moser inequality, mountain-pass theorem and the Ekeland's variational principle in a suitable weighted Sobolev space.

Joint work with Uberlandio B. Severo (Department of Mathematics, UFPB - Universidade Federal da Paraíba).

---

\*Department of Mathematics, Universidade Estadual da Paraíba, email: fsiberio@cct.uepb.edu.br