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EXISTENCE AND NONEXISTENCE RESULTS FOR A CLASS OF ASYMPTOTICALLY LINEAR NON-AUTONOMOUS EQUATIONS IN $\mathbb{R}^N$

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We will present some recent results on the existence of solutions for a class of elliptic equations which are asymptotically linear at infinity, of type

$$\Delta u + \lambda u = a(x)\frac{u^3}{1+u^2} \ ,$$

where $0 < \lambda$ and $\lambda < a(x) \to a_\infty$, as $|x| \to \infty$. Using concentration compactness arguments and a general Pohozaev type manifold, we find bound state solutions via a linking theorem. Moreover, we show that a minimizing problem, related to the existence of a ground state, has no solution.

This is a work in collaboration with Raquel Lehrer from Universidade Estadual do Oeste do Paraná- UNIOESTE, Campus Cascavel.

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