

Sign-changing solutions for critical equations with Hardy potential

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We discuss existence issues for a Dirichlet problem in bounded domains with polynomial nonlinearities of critical growth in presence of an Hardy potential. Linear perturbations can produce positive solutions and we aim to construct sign-changing solutions, shaped as a tower of “bubbles” centered at zero with alternating signs. The construction is optimal as a very fine asymptotic analysis shows for radial towers of “bubbles”. This is a joint work with N. Ghoussoub, P. Esposito and A. Pistoia.