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Blow-up Analysis for a Nonlinear Elliptic Equation with Critical growth and Hardy weight.

In this talk we will study the asymptotic behaviour of a sequence of solutions to a family of elliptic PDEs with Hardy weight and Sobolev critical growth. The blow-up analysis will give us conditions under which compactness holds for this sequence and this in turn will help establish the existence of solutions. The location of the singularity, be it in the interior of the domain or on its boundary, affects the analytical properties of the equation and makes the two situations quite different. When the singularity is in the interior then a lower order perturbation suffices for high dimensions, while the curvature of the boundary plays a crucial role if the singularity is on the boundary. This is a joint work with Nassif Ghoussoub(UBC) and Frederic Robert(Universite de Lorraine).