BRUNO PREMOSELLI, Université Libre de Bruxelles
Towers of bubbles for Yamabe-type equations in dimensions larger than 7

In this talk we consider perturbations of Yamabe-type equations on closed Riemannian manifolds. In dimensions larger than 7 and on locally conformally flat manifolds we construct blowing-up solutions that behave like towers of bubbles (or bubble-trees) concentrating at a critical point of the mass function. Our result does not assume any symmetry on the underlying manifold.

We perform our construction by combining finite-dimensional reduction methods with a linear blow-up analysis. Our approach works both in the positive and sign-changing case. As an application we prove the existence, on a generic bounded open set of $\mathbb{R}^n$, of blowing-up solutions of the Brézis-Nirenberg equation that behave like towers of bubbles with alternating signs.