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Existence and Asymptotics of Nonlinear Helmholtz Eigenfunctions

We discuss the problem of proving existence and asymptotics of solutions to equation $-\Delta_M u = N(u)$, where $N(u)$ is a monomial. We consider the space to be even asymptotically hyperbolic. I will introduce the main technique, which is module regularity, and how it is used for proving existence of solution, and that these nonlinear eigenfunctions have the same asymptotics as the linear eigenfunctions.