

Ground states of the NLSE with standard and delta nonlinearities on star graphs

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We study the existence of ground states at fixed mass of a Schrödinger equation on star graphs with two subcritical power-type nonlinear terms: a pointwise one, located at the vertex of the graph, and a standard one. We show that existence and non-existence results strongly depend on the interplay between the two nonlinearities. In particular, we see that when one nonlinearity prevails the other, existence of ground states depends both on the mass and on the number of halflines in the graph, whereas if the two nonlinearities are in a specific balance, then existence of ground states is only determined by the number of halflines of the graph. This is a joint work with R. Adami and S. Dovetta.