ON LINEARLY COUPLED SYSTEMS INVOLVING SCHRÖDINGER EQUATIONS *

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Abstract

The study of ground state solutions for coupled systems has made great progress and attracted attention of many authors for its great physical interest. In this talk we give a survey on recent results related to the existence of ground states for several classes of linearly coupled systems involving Schrödinger equations

$$\begin{cases} Lu + V_1(x)u = f_1(x,u) + \lambda(x)v, & x \in \mathbb{R}^N, \\ Lv + V_2(x)v = f_2(x,v) + \lambda(x)u, & x \in \mathbb{R}^N, \end{cases} \tag{S}$$

where L denotes a local or nonlocal operator. We discuss the difficulties imposed by these classes of systems and the methods applied to get a ground state solution.