Low Energy Vector Solutions and Their Asymptotic for Large Interaction Forces in Certain Nonlinear Elliptic Systems

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For nonlinear elliptic systems coming from a nonlinear Schroedinger system, a symmetric matrix representing the interaction between components governs the system. The construction of possibly lower energy solutions and the dependence of the solutions on the matrix is quite complicated in general. We are interested in the case that intra-species interaction forces are fixed and inter-species forces are very large. In this case, depending on the network between components by repulsive or attractive forces, several different types of patterns may appear, I would like to explain my recent studies on the problem with three components and some exploitation to the general n components problem.