
We consider a system of non-linear Klein-Gordon equations

\[ \partial_{tt}v_j - \Delta v_j + m_j^2 v_j + \partial_v F(v) = 0, \quad 1 \leq j \leq k. \]

We assume that \( F \in C^1(\mathbb{R}^k, \mathbb{R}) \) and \( F(0) = 0 \). Moreover,

\[ |DF(u)| \leq c(|u|^{p-1} + |u|^{q-1}), \quad u \in \mathbb{R}^k \]

\[ F(u) + \frac{1}{2} \sum_{j=1}^{k} m_j^2 u_j^2 \geq 0 \]

and \( m_j > 0 \) for every \( j \). Standing-waves \( k \)-uples solutions to the NLKG

\[ v_j(t, x) = e^{-i \omega_j t} u_j(x), \quad (u_j, \omega_j) \in H^1(\mathbb{R}^N, \mathbb{R}) \times \mathbb{R} \]

correspond to solutions of the elliptic systems

\[ -\Delta u_j + (m_j^2 - \omega_j^2) u_j + \partial_j F(u) = 0, \quad 1 \leq j \leq k. \]

We show that there is a solution \( (u, \omega) \) such that \( u_j \) is radially symmetric and \( \omega_j \in (0, m_j) \). (Received September 11, 2011)