

EXISTENCE OF STEADY STABLE SOLUTIONS FOR GINZBURG-LANDAU EQUATION  
IN A DOMAIN WITH NONTRIVIAL TOPOLOGY

Norimichi Hirano

Yokohama National University

Let  $N \geq 2$ , and  $\Omega \subset \mathbb{R}^N$  be a bounded domain with a boundary  $\partial\Omega$ . Let  $\Gamma \subset \partial\Omega$  be closed. Our purpose in this talk is to consider the existence of stable solutions  $u \in H^1(\Omega, \mathbb{C})$  of Ginzburg-Landau equation:

$$\begin{cases} -\Delta u(x) &= \lambda(w_0^2(x) - |u|^2)u && \text{in } \Omega, \\ u &= g && \text{on } \partial\Omega \setminus \Gamma, \\ \frac{\partial u}{\partial \nu} &= 0 && \text{on } \Gamma \end{cases}$$

where  $\lambda > 0$ ,  $w_0 \in C^2(\overline{\Omega}, \mathbb{R}^+)$  and  $g \in C^2(\partial\Omega \setminus \Gamma)$  such that  $|g(x)| = w_0(x)$  on  $\partial\Omega \setminus \Gamma$ .