TALK

Some large interaction problems

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We discuss two problems when k is large.

$$\dot{u} = \Delta u + f(u) - kuv \quad \text{in } \Omega \times R$$
$$\dot{v} = \alpha \Delta v + g(v) - kuv$$
$$u = v = 0 \quad \text{on } \partial\Omega \times R$$
$$u, v \geq 0, \quad \alpha > 0, \quad f(0) = g(0) = 0$$

The second problem is

$$\dot{u} = \Delta u + f(u) - kv^2 u$$
$$\dot{v} = \alpha \Delta v + g(v) - ku^2 v$$

(with similar boundary conditions)

The first equation is a populations model while the second occurs in Super conductivity

We discuss ... results and open problems.