

## **Dissipative magnetic 2D Zakharov system in bounded domain**

We consider the dissipative magnetic Zakharov system in a smooth (2D) bounded domain  $\Omega \subset \mathbb{R}^2$  of the form

$$iE_t + \Delta E - nE + iE \times B + i\gamma_1 E = g_1(x, t), \quad x \in \Omega,$$

$$n_{tt} + \gamma_2 n_t - \Delta (n + |E|^2) = g_2(x, t), \quad x \in \Omega,$$

$$B_{tt} - \gamma_3 \Delta B_t + \Delta^2 (B + iE \times \overline{E}) = g_3(x, t), \quad x \in \Omega,$$

where  $n(x, t)$  and  $B(t, x) = (0, 0, B_3(t, x))$  are the real functions and  $E(x, t) = (E_1(t, x), E_2(t, x), 0)$  is a complex one.

If we omit magnetic field  $B$ , then the above system is reduced to the dissipative Zakharov system. This system has been studied by many authors (see [1] and references therein).

In the case  $\Omega = \mathbb{R}^d$  for  $d = 2, 3$  the Cauchy problem for the above system has been considered in [2]. It was obtained local existence and uniqueness results. Our main result is the global well-posedness of the considered problem in some Sobolev type classes and existence of a global attractor.

[1] I. Chueshov and A. Shcherbina, On 2D Zakharov system in a bounded domain, Differential and Integral Equations, 18 (2005), 781-812.

[2] Boling Guo, Jingjun Zhang, Chunxiao Guo. \/, On the Cauchy problem for the magnetic Zakharov system, Monatshefte fur Mathematik, 170 (2013), 89-111.

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