1023-35-1730 **Justin Holmer***, Department of Mathematics, #3840, Berkeley, CA 94720, and **Nikolaos Tzirakis**. *Local Ill-posedness of the 1D Zakharov system.* Preliminary report.

Ginibre-Tsutsumi-Velo (1997) proved local well-posedness for the Zakharov system

$$i\partial_t u + \Delta u = nu, \quad \partial_t^2 n - \Delta n = \Delta|u|^2$$

where $u = u(x,t)$, $n = n(x,t)$, $x \in \mathbb{R}^d$, for any dimension d, in the inhomogeneous Sobolev spaces $(u,n) \in H^k(\mathbb{R}^d) \times H^\ell(\mathbb{R}^d)$ for a range of exponents k, ℓ depending on d. Here we restrict attention to dimension $d = 1$ and present a few results establishing local ill-posedness for exponent pairs (k,ℓ) outside of the well-posedness regime. The main result demonstrates ill-posedness for $k = 0$, $\ell < -\frac{1}{2}$, in the sense that the data-to-solution map fails to be uniformly continuous. The technique is to take initial-data configured to excite a nonlinear resonance between u and n, introduce a nonlinear ansatz for the solution, and employ a low regularity time-globalizing technique developed by Colliander-Holmer-Tzirakis (2006) to show that the ansatz remains a valid approximation for a suitably long time. (Received September 26, 2006)