

DISPERSIVE PDE 25, PROBLEM SET 13

- (1) Verify the assertion of remark 2.3 in lecture 8.pdf.
- (2) Carefully complete the proof of lemma 3.2 in lecture 8.pdf.
- (3) Justify the inequality

$$|\phi(t, x) - \phi(0, x)| \leq C_\epsilon \cdot |t|^{\frac{\epsilon}{2}} \cdot \|(\phi, \phi_t)\|_{H^{\frac{3}{2}+\epsilon} \times H^{\frac{1}{2}+\epsilon}} \leq C_\epsilon \cdot |t|^{\frac{\epsilon}{2}} \cdot e^{C \cdot \|u(0, \cdot)\|_{H^{\frac{3}{2}+\epsilon}}} \\ \text{in the proof of Theorem 4.1 in lecture8.pdf.}$$