

DISPERSIVE PDE 25, PROBLEM SET 10

- (1) Carefully verify the bound for $F_2(\lambda)$ just preceding Lemma 2.4 in lecture7.pdf.
- (2) Verify the bound

$$\left| \int_{\mathbb{R}^n} (1 - \psi_1(x)) \cdot \psi(x) \cdot e^{i\lambda\phi(x)} dx \right| \leq C_N \lambda^{-N}$$

for any $N \geq 1$ at the end of the proof of Lemma 2.4 (lecture7.pdf)

- (3) Check that the Hessian

$$\nabla_{\omega'}^2 \phi(\omega'_*)$$

in the proof of Prop. 2.5 is indeed non-singular.