

ON THE NUMBER OF EIGENVALUES FOR A 1D NON-SELFADJOINT OPERATOR

ARI LAPTEV

Let us consider the equation

$$-\psi''(x, k) + 2kiU(x)\psi(x, k) = k^2\psi(x, k), \quad (1)$$

where U is a real $C_0^\infty(\mathbb{R})$ function, $U \geq 0$.

We say that $\{\varkappa\}$ is an eigenfrequency (or an eigenvalue) if there exists an $L^2(\mathbb{R})$ function ψ satisfying (1) with $k = \varkappa$.

Let $\{\varkappa_l\}$ be the set of all eigenvalues for the equation (1).

Proof the following conjecture on the number of the eigenvalues:

$$\#\{l : \text{Im } \varkappa_l > \text{Re } \varkappa_l\} \leq C \int U(x) dx.$$

The papers [1] and [2] might be useful for the proof.

REFERENCES

- [1] Hundertmark D., Laptev A. and Weidl T.: *New bounds on the Lieb-Thirring constants*. Inv. Math. **140** (2000), 693-704.
- [2] Hundertmark D., Lieb E.H. and Thomas L.E.: *A sharp bound for an eigenvalue moment of the one-dimensional Schrödinger operator*. Adv. Theor. Math. Phys. **2** (1998), 719-731.