Schrodinger operators with singular potentials: Lieb-Thirring bounds and preservation of a.c. spectrum

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We introduce a new series of trace type relations for 1D Schrodinger operators generalizing the well-known Faddeev-Zhakharov trace formulas. Comparing to the original Faddeev-Zhakharov formulas, these relations look quite unwieldy but have an important advantage - they hold for large classes of distributional (singular) potentials. We intend to introduce new Lieb-Thirring type bounds and discuss the absolutely continuous spectrum preservation in the context of the full line Schrodinger operator with potentials from some Sobolev spaces with negative indexes.