
ADI TCACIUC, University of Alberta, Edmonton, Alberta

Almost invariant half-spaces

We say that a bounded linear operator T on a Banach space X admits an almost invariant half-space if there exists an infinite dimensional and infinite codimensional closed subspace Y (a half-space) and a finite dimensional subspace F such that $T(Y) \subset Y + F$. The question whether every bounded linear operator admits an almost invariant half-space is connected to the invariant subspace problem, but it is not necessarily weaker.

In this talk we introduce a promising technique for approaching this question and prove several positive results for weighted shifts operators. In particular we show that Donoghue operators, which do not have invariant half-spaces, admit almost invariant half-spaces with one dimensional “error”.

This is joint work with G. Androulakis, A. Popov and V. Troitsky.