

# ON WANDERING SPACES FOR OPERATORS

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ABSTRACT. Let  $T$  be a bounded operator on some separable Hilbert space  $H$ . A closed vector subspace  $E \subset H$  is said to be a wandering subspace for  $T$ , provided that  $E \perp T^k(E)$  for every  $k \geq 0$ . We explore in this lecture the existence of wandering subspaces for a given bounded operator. The case where the equality  $H = \bigoplus_{k \geq 0} T^k(E)$ , is specially considered. We relate such problem to some operator inequalities and discuss the wandering Beurling theorem type for invariant subspaces. Some applications to weighted shifts are also given.

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