

Title: Frequency dependent Hautus conditions and perturbations for dispersive systems

Abstract: We show that, in many situations of interest, control/observation systems described by Schrodinger or Kirhhoff plate type equations satisfy a strong version of the classical Hautus condition, in which the constant yielding the exact observability time is replaced by a function of the frequency which becomes arbitrarily small when the frequency grows to infinity. We next use this to show that the exact observability property is preserved when the generator is perturbed by bounded (but not necessarily compact) operators, provided that they satisfy a standard unique continuation condition. Finally, we use the above results to derive local exact controllability for systems describing nonlinear plate vibrations.