

Abstract Submitted
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A straightforward characterization of non-modal effects from the evolution of linear dynamical systems¹ CRISTOBAL ARRATIA, Univ de Chile — A simple construction will be shown, which reveals a general property satisfied by the evolution in time of a state vector composed by a superposition of orthogonal eigenmodes of a linear dynamical system. This property results from the conservation of the inner product between such state vectors evolving forward and backwards in time, and it can be simply evaluated from the state vector and its first and second time derivatives. This provides an efficient way to characterize, instantaneously along any specific phase-space trajectory of the linear system, the relevance of the non-normality of the linearized Navier-Stokes operator on the energy (or any other norm) gain or decay of small perturbations. Examples of this characterization applied to stationary or time dependent base flows will be shown.

¹CONICYT, Concurso de Apoyo al Retorno de Investigadores del Extranjero, folio 821320055.

Cristobal Arratia
Univ de Chile

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