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On long-time algebraic and exponential instabilities found in linear dispersive flows NATHANIEL BARLOW, KRISTINA KING, PAULA ZARETZKY, MICHAEL CROMER, STEVEN WEINSTEIN, Rochester Institute of Technology — A physically-motivated class of partial differential equations that describes the response of a system to disturbances is examined. Morphological differences are identified between system responses that exhibit algebraic growth and the more typical case of exponential growth. Specifically, the propagation characteristics of the response are examined in the context of spatio-temporal hydrodynamic stability theory. One key attribute of predicted algebraically growing solutions is the prevalence of transient growth in almost all of the response, with the long-time growth occurring asymptotically at precisely one wave speed.

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