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Convective and absolute nature of boundary layer instabilities in an opened rotating cavity[1] BERTRAND VIAUD, CNRS, CREA, ERIC SERRE, PATRICK BONTOUX, CNRS — Direct Numerical Simulation of incompressible Navier-Stokes equations has been used to investigate the impulse response of a rotating boundary layer. The aim is to extend recent theoretical works of Pier [J. Fluid Mech. *487*, 315 (2003)] and Davies & Carpenter [J. Fluid Mech. *486*, 287 (2003)] about the role played by the absolute instability in the occurence of turbulence. Thus, the identification of such a mode would open prospect in the developpement of efficient control strategy of transition. By the way of a highly accurate three dimensional spectral solver, spatio-temporal properties of convective type I (inviscid) and type II (viscous) instabilities have been studied, and the results appear to be in good agreement with experimental and theoretical works (Serre & al. [Phys. Fluids, *16 3* (2004)]). Computations at high Reynolds numbers, larger than the theoretical critical Reynolds number of absolute mode are in progress. In this prospect, the spectral solution enables precise determination of the spatial and frequential characterictics of this mode.

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Bertrand Viaud
CNRS, CREA

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