On break-up of a growing liquid cylinder ROUSLAN KRECHET-NIKOV, University of Alberta — In this talk we will discuss stability of a liquid cylinder of a time-varying radius with the goal to understand the effects of time-dependence of the underlying base state on a Rayleigh-Plateau instability. All the key processes contributing to instability development are revealed with an analytical analysis of the exact incompressible inviscid potential flow formulation. In particular, without invoking the 'frozen' base state assumption, the entire time interval of a perturbation evolution is explored highlighting physical mechanisms at each stage of development. We find that the stability picture proves to be different from break-up of a static liquid cylinder.

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