

The Onset of Taylor Vortex in the Flow Induced by an Impulsively Started Rotating Cylinder

김민찬*, 최창균¹

제주대학교 화학공학과; ¹서울대학교 응용화학부

(mckim@cheju.ac.kr*)

The onset of instability in the flow by an impulsively started rotating cylinder is analyzed by employing CFD analysis. After the inner cylinder rotate impulsively, the secondary motion appears at a certain time. In order to trace the temporal evolution of velocity fluctuations, the Navier-Stokes equations are solved numerically by using finite volume method. Based on the numerical results, the characteristic time to mark the onset of instability is suggested and compared with previous theoretical and experimental works.