Study of the flow in a rotor-stator reactor

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We developed and validated a rotor-stator model which could predict the flow pattern of an incompressible fluid inside the rotor stator cavity. Effect of different parameters including aspect ratio, angular velocity of rotating disk, and throughflow efficiency were studied. The main focus was on the behavior of boundary layers generated on rotating and stationary disks named as Von Karman layer and Bodewadt layer, respectively. The transition between Stewartson flow and Batchelor type of flow could be observed and explained by these parameters.