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Tej-eddine Ghou, **Slim Ibrahim** and **Quyuan Lin*** (abellyn@math.tamu.edu), 155 Ireland St, Blocker Building, College Station, TX 77840, and **Edriss S. Titi**. *Three-dimensional Inviscid Primitive Equations with Rotation*.

Large scale dynamics of the oceans and the atmosphere are governed by the primitive equations (PEs). It is well-known that the $3D$ viscous primitive equations are globally well-posed in Sobolev spaces. In this talk, I will discuss the ill-posedness in Sobolev spaces, the local well-posedness in the space of analytic functions, and finite-time blowup of solutions to the $3D$ inviscid PEs with rotation (Coriolis force). Moreover, I will also show, in the case of “well-prepared” analytic initial data, the regularizing effect of the Coriolis force by providing a lower bound for the life-span of the solutions that grows toward infinity with the rotation rate. Joint work with Tej-eddine Ghou (New York University in Abu Dhabi), Slim Ibrahim (University of Victoria), and Edriss S. Titi (Texas A&M and University of Cambridge). (Received September 14, 2020)