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Chongsheng Cao, Yanqiu Guo* (yanguo@fiu.edu) and **Edriss S Titi**. *Analysis of a rapidly rotating convection model of tall columnar structure.*

This presentation is based on our analysis of a three-dimensional fluid model describing rapidly rotating convection that takes place in tall columnar structures. Global regularity is shown provided the model is regularized by a weak dissipation term. The main difficulty lies in the fact that the physical domain is three-dimensional, whereas the regularizing viscosity acts only on the horizontal variables. I will also discuss the global well-posedness of this model in the limit of infinite Prandtl number. (Received August 16, 2020)