1159-35-52   **Jiahong Wu*** (`jiahong.wu@okstate.edu`), 401 Mathematical Sciences, Stillwater, OK 74078. *A partially dissipated incompressible Oldroyd-B model.*

The Oldroyd-B equations govern the motion of complex fluids such as a solvent with particles suspended in it. This talk focuses on a partially dissipated Oldroyd-B system with dissipation only in the equation of stress tensor. We present recent results on the small data global well-posedness and large-time behavior problem. Since there is no kinematic dissipation, the velocity satisfies a forced incompressible Euler equation and its Sobolev norms could potentially grow rather rapidly. This fact makes the global existence and stability problem very difficult. By discovering and exploiting the extra smoothing due to the coupling and interaction in this Oldroyd-B model, we are able to obtain the desired small data global well-posedness. In addition, sharp large-time behavior estimates are also established. (Received July 23, 2020)