1171-16-89   **Hongdi Huang***, 2601 S Braeswood Blvd, apt 110, 1104, Houston, TX 77025, and **Xingting Wang** and **James Zhang**. *When is a weak bialgebra a weak Hopf algebra?*

Weak bialgebras and weak Hopf algebras are generalized from bialgebras and Hopf algebras, respectively. Weak Hopf algebras admit a "nice" property that a direct sum of weak Hopf algebras forms a "big" weak Hopf algebra. They have been applied in many math branches recently. In this talk, we will investigate the existence of the antipode of a weak bialgebra, i.e., understand when a weak bialgebra is a weak Hopf algebra. (Received August 08, 2021)