

## Description of Research –Q-PACE Cubesat Experiment

The overall goal of the Q-PACE mission is to understand protoplanetary growth.

Q-PACE will perform over 100 collision experiments producing 10's of thousands of collisions simulating the first steps in planet formation. The Q-PACE experiment consists of a particle chamber that is shaken to induce low-velocity collisions between the particles; these types of collision cannot be achieved in Earth's gravity. The collisional evolution of the swarm of particles is captured by a high-speed video camera. The video data is transmitted to the ground station for analysis to measure the outcomes of collisions based on impact speed and particle type.

The radio communications links are necessary to control the experiment and to get the data back to Earth. There is no other means available to achieve this data acquisition and control.