2013 Student Launch Initiative Project with Dielectrophoresis

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The Mission
The University Student Launch Initiative project at UAH introduces students to the profile of design, build, fly, and analyze. This year, a team of 15 undergraduate mechanical and aerospace engineering students joined hands in designing and building a rocket to fly to a target altitude, carrying a scientific payload, and safely recovering the data.

Dielectrophoresis Payload
• Dielectrophoresis: a force induced on an electrically neutral fluid particle in a non-uniform electric field.
• Force acts in the direction of the increasing strength of the electric field.

Spaceflight Application
• Dielectrophoretic force used as a propellant management system in cryogenic fuels in microgravity.
• Fluid collection at the center of a tank to reduce heat transfer from the walls of the tank.

Flights Predictions
• Apogee: 5360 ft
• 2nd Stage Separation Altitude: 2200 ft
• Max. Acceleration: 8.8 g’s
• 4 Seconds of Less Than 0.1g’s

Results
• Finished 6th Out of 37 University Teams in 2013 NASA SLP competition.
• Reached Out to an Estimated 41,000 People while Being on Rocket 95.1 FM

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