Variable Emittance Surfaces (VES)

Electrochromic Cell:
- voltage application causes reversible change in color
- to be adjusted for thermal regulation (Figure 1)
- functions as a possible solution to low-cost, effective device to mitigate thermal loads

Electrophoretic Display:
- voltage applied allows for charged particles to migrate toward or away viewing plate
- VES alternative to allow for variable transparencies

Orbital Mechanics
- satellite operates in low-earth orbit (LEO) at 500km (Figure 4)
- orbit visual and thermal analysis conducted in Thermal Desktop

Integrations and Environment Testing
Thermal Vacuum System:
- simulates vacuum conditions for testing of VES
- designed and manufactured by STMS undergraduate researchers
- reaches vacuum gauge pressure of 0.01 Torr
- operational volume of 1000 cubic centimeters

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