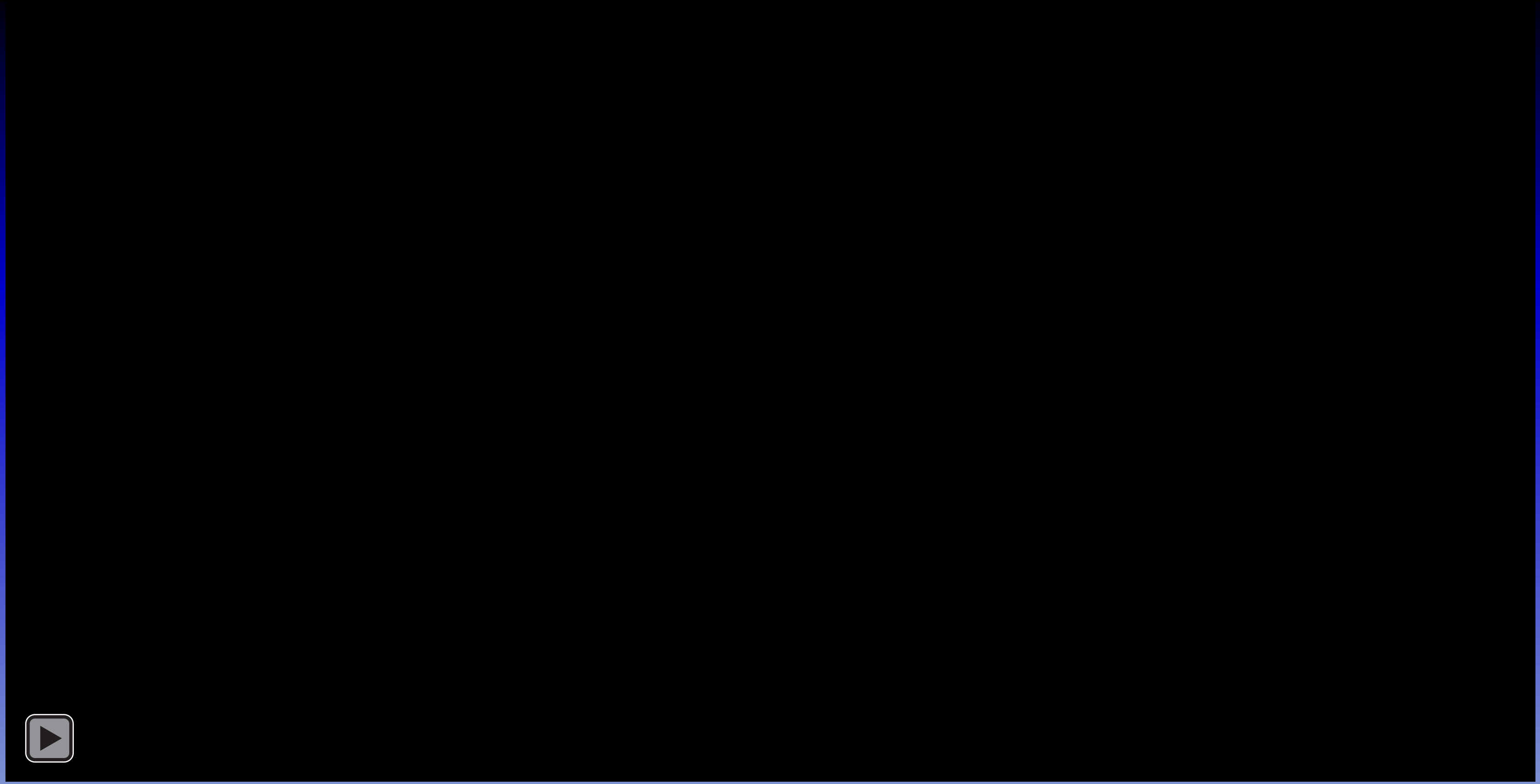
Animation supported by 3D dynamics simulations

- Topology changes in space are via concerted action of all the reaction wheels.
- A distributed controller is used for attitude control,
- Software uses a layered architecture using REST (APIs) – for rapid payload integration.
- A mobile ad-hoc network architecture is used with optical and RF Comms.
- Machine Learning agents used to “teach” learned experiences to other agents. A “mentor-apprentice” relationship.



HIVE can become a space argosy via continued self assembly

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Explore Utility of the Modular HIVE Structure for an in-Space Power Station

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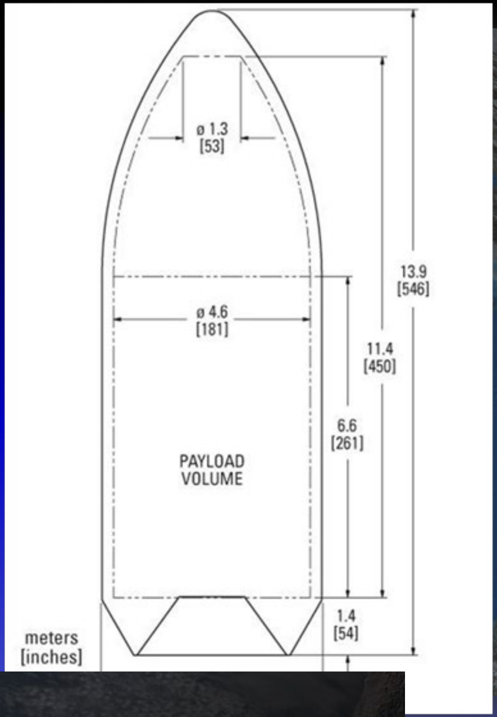
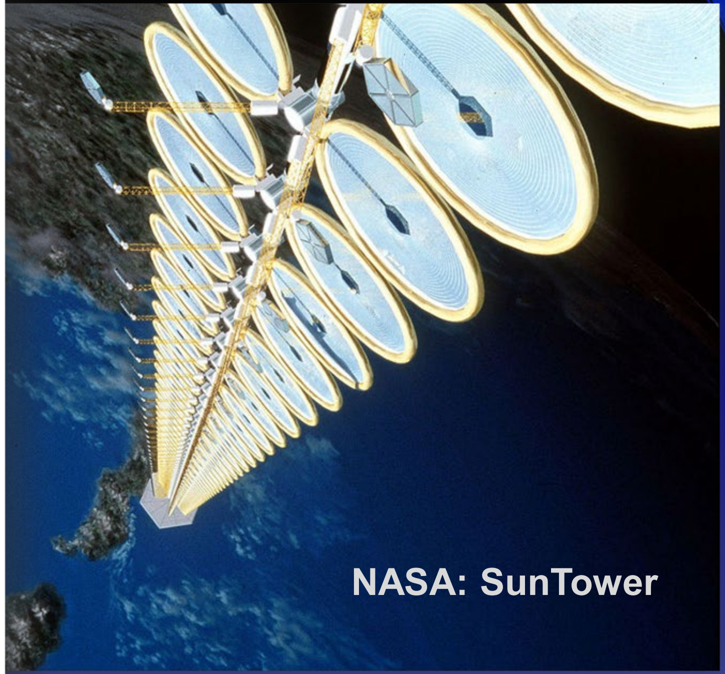
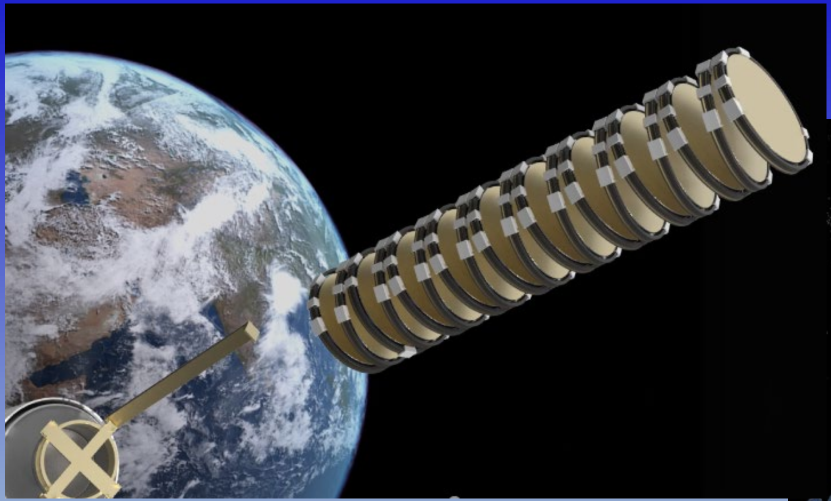
Generate Electrical Power for Redistribution

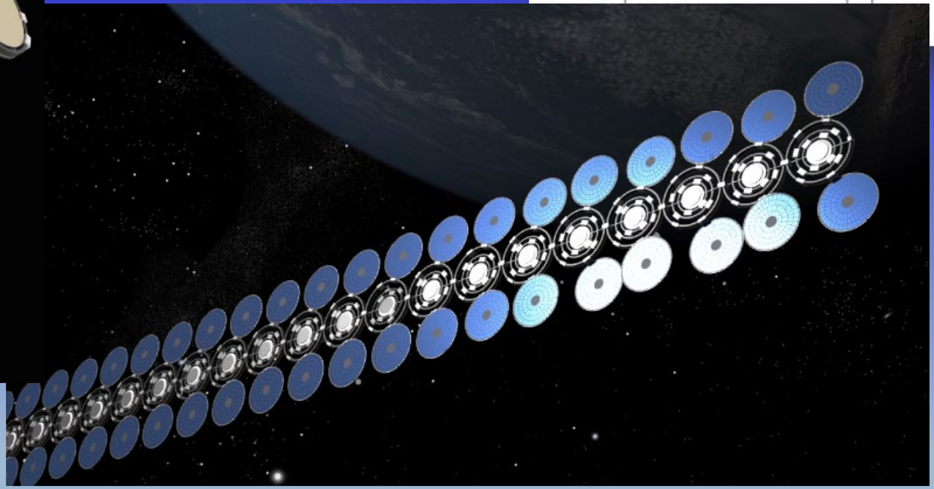
Imagine a Sun Tower design based on HIVE

- Some assumptions:
  - *Imagine a single Falcon Heavy,*
  - *hoop outer diameter of 4.6 m,*
  - *hoop stack with 90% packing efficiency,*
  - *The center section includes electronics for DC conversion and battery storage.*









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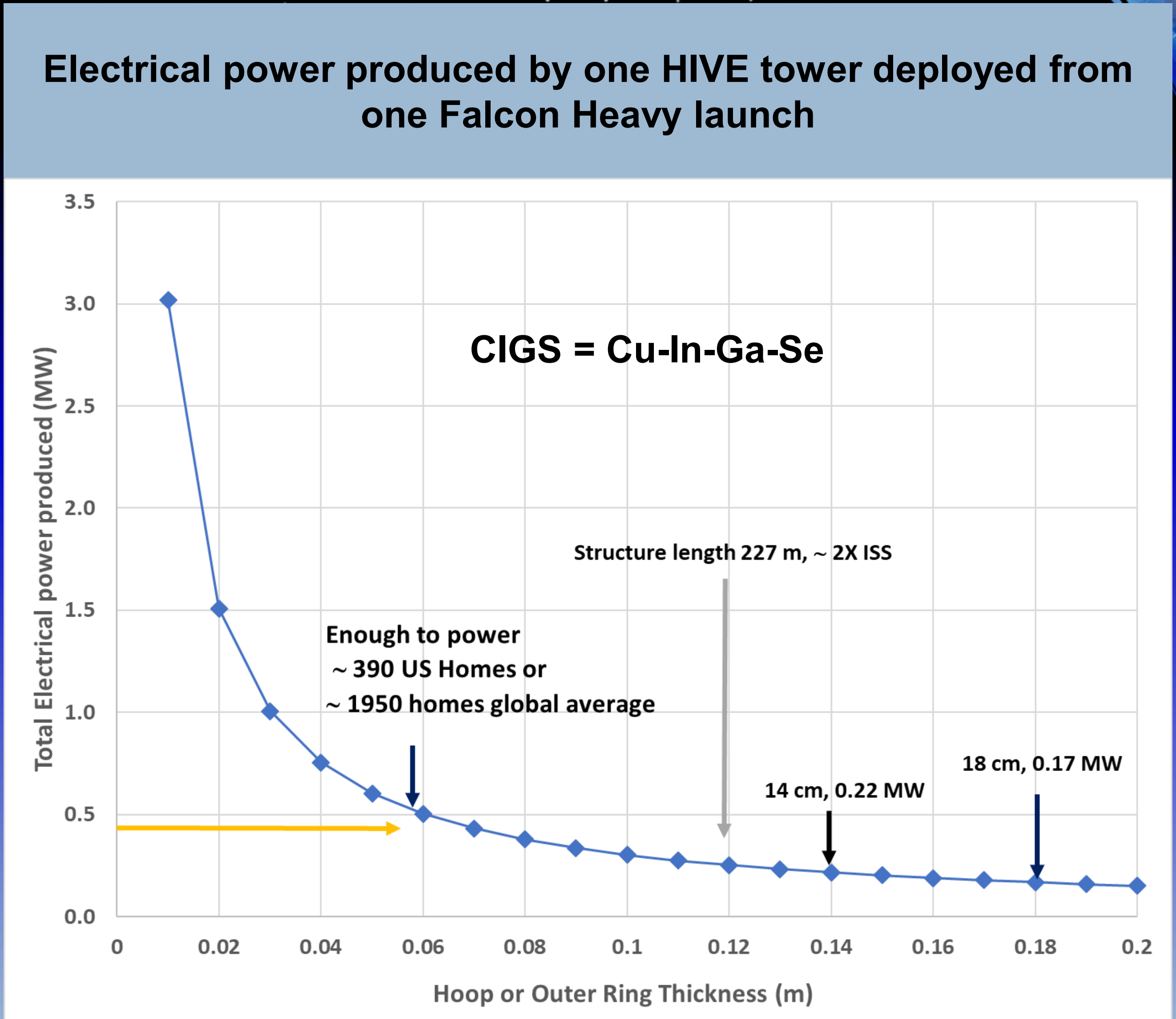
- Analysis results (CBE)
  - –*Use of thin film CIGS solar arrays 22%, 70% sunlight availability,*
  - –*For hoop thickness of 6 cm,*
  - –*Have 99 stacked hoops per Falcon 9,*
  - –***0.5 MW of electrical** power produced,*
  - –*Tower length is ~450m,*
  - –*Total heat to radiate ~ 2MW,*
  - –*Using just back side surface as radiators for removing heat,*
  - –*Surface temperature is 320K, emissivity = 0.8.*
  - –*If a conversion efficiency of 22% is used for electrical to optical laser beam conversion could have **a ~ 117 kW laser beam or double that power in microwave beam.***
  - –*Estimated mass for space power station 6500 kg.*



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