



Where did all those Launches come from?
Or
What can we do now that we have launches?

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Can we keep up with the new launch opportunities?

What will happen if Garrett can't fill his ELaNa launch slots?

How can we make better use of space?



Overview

- **What about launches?**
- **What about payloads?**
- **Some work on small sats smaller than CubeSat**
- **An additional approach**
- **Developing Apps for Space Experiments**

▪ **What about launches?**



What about launches?



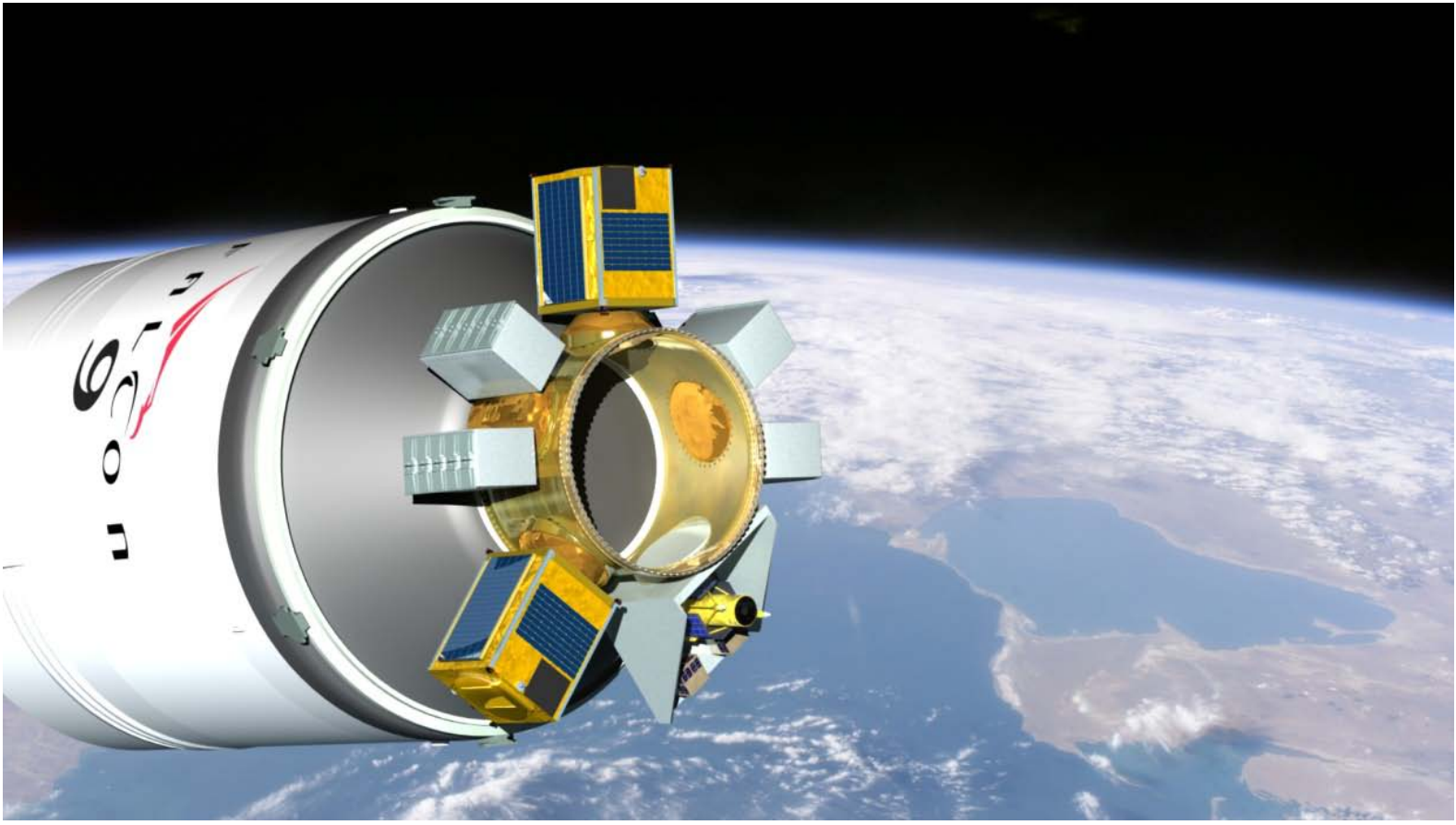
Dream Chaser



MAXWELL PRELIMINARY

What about launches?

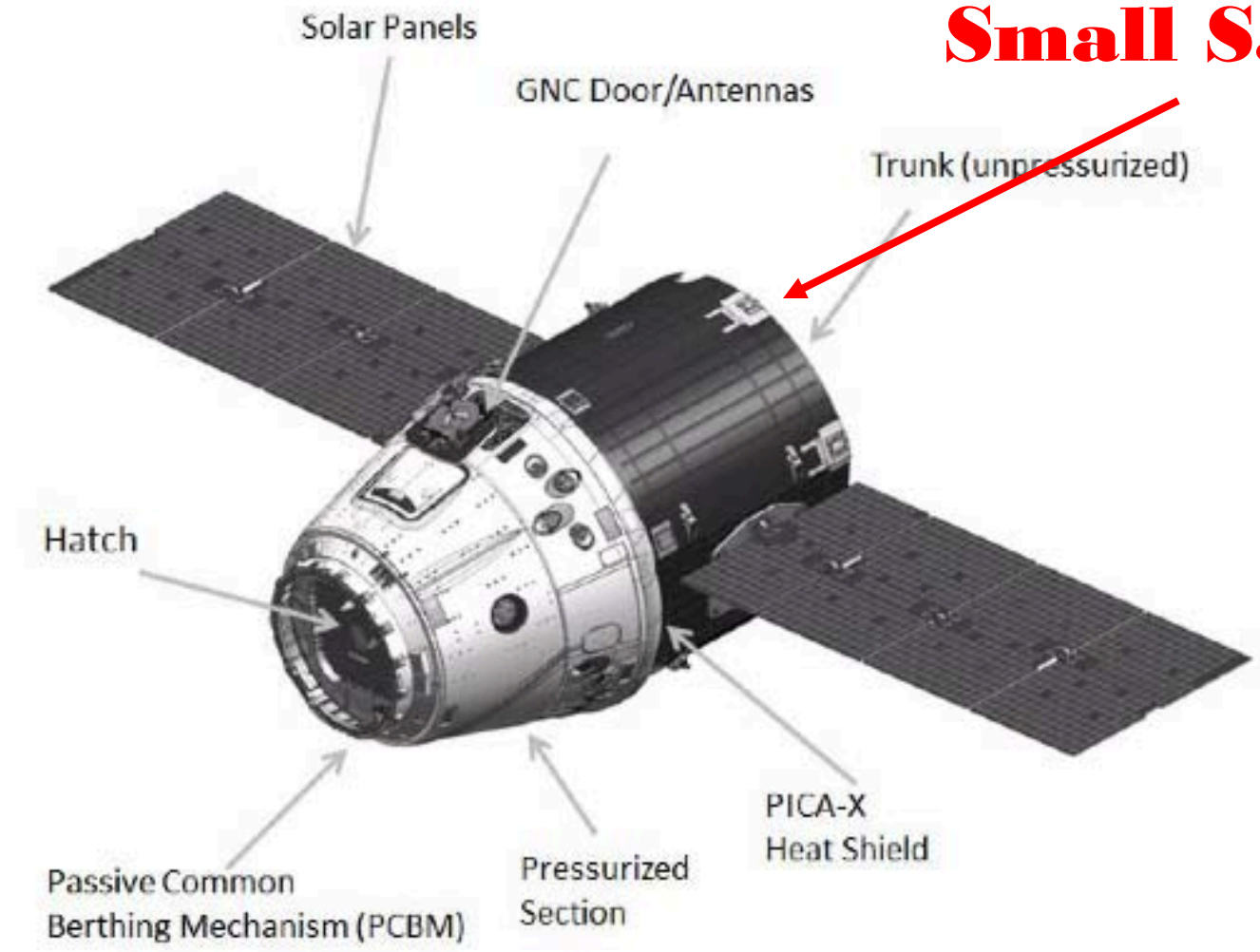
ESPA Ring



What about launches?

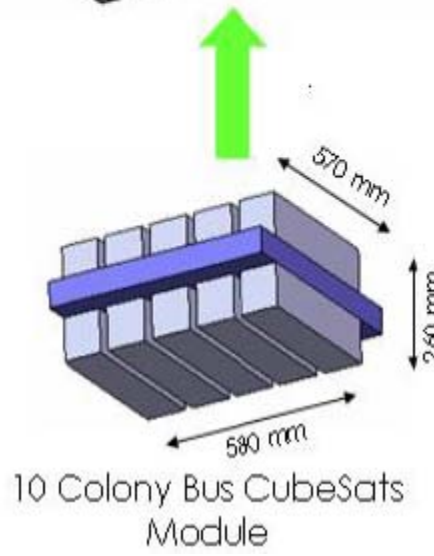
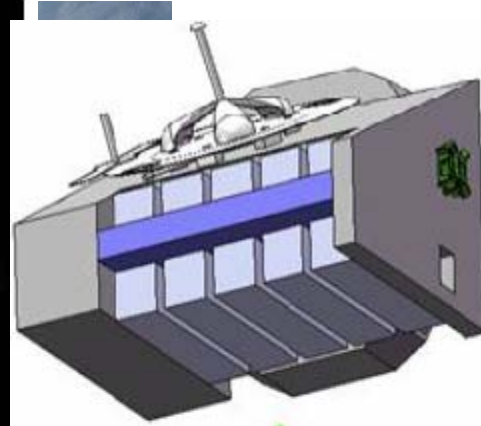
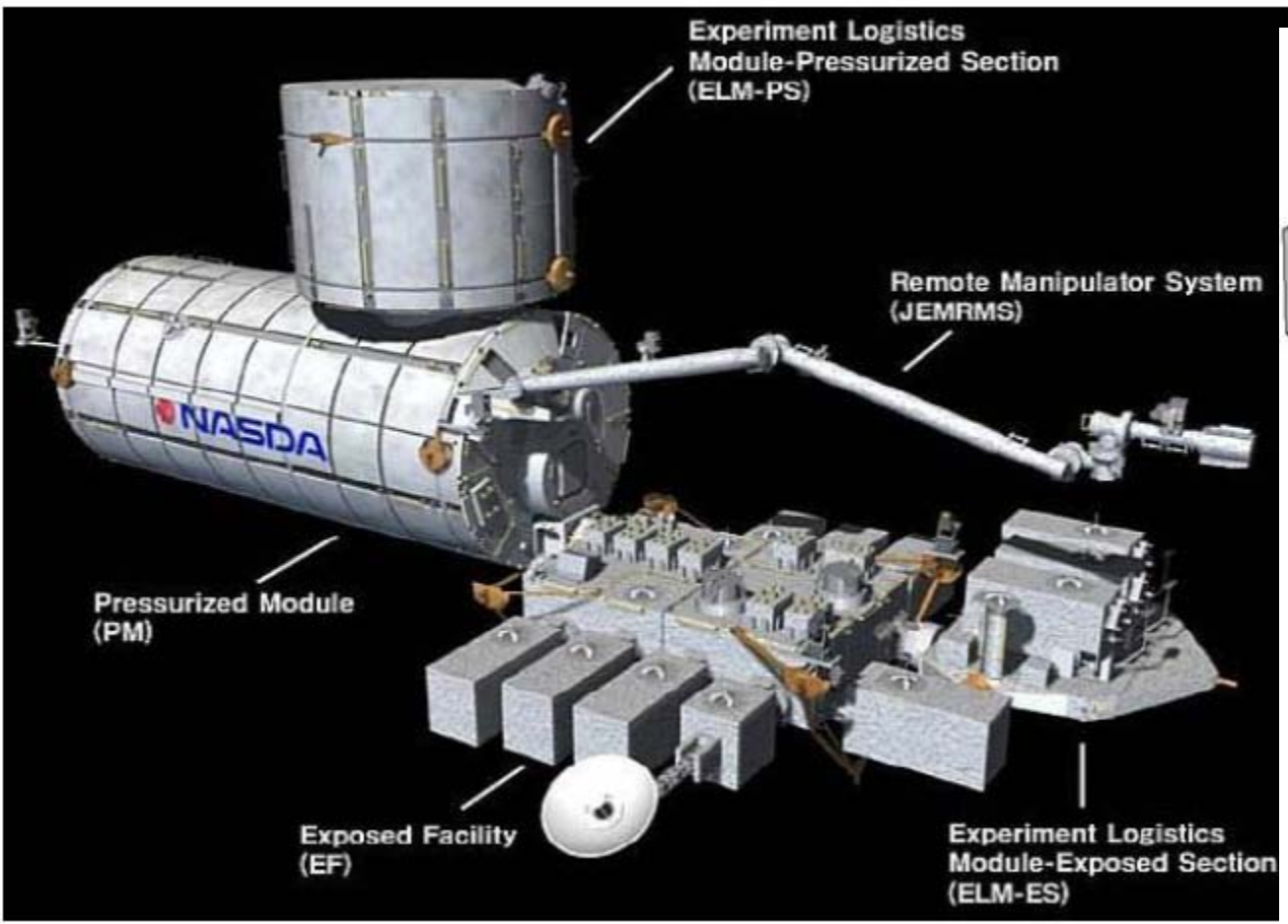
Dragon Capsule

Small Sats?



What about launches?

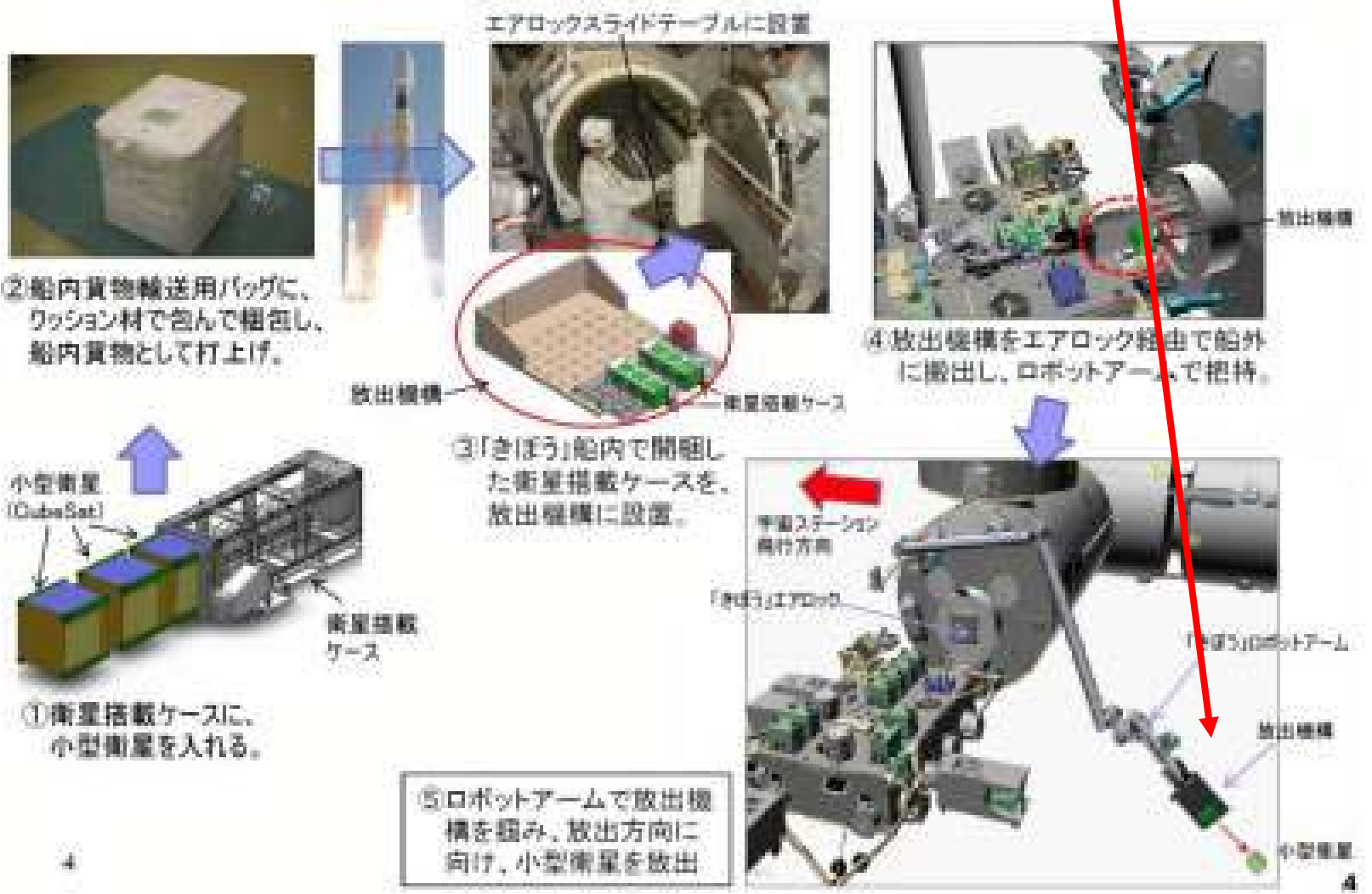
Introduction to the NanoRacks and Astrium NA External Platform Program



What about launches?

CubeSats

NanoRacks External Platform Program



ISS JEM Module Launches



▪ **What about payloads?**

Present Payloads?

- **Space Weather - NSF**
- **Military applications**
- **Technology developments**
 - **More power**
 - **High Comm rates**
 - **Attitude control**
 - **Propulsion**
 - .
 - .
 - .



▪ **Some work on small sats smaller than CubeSats**

Proposed at Cal Poly April, 2009

Making it Small

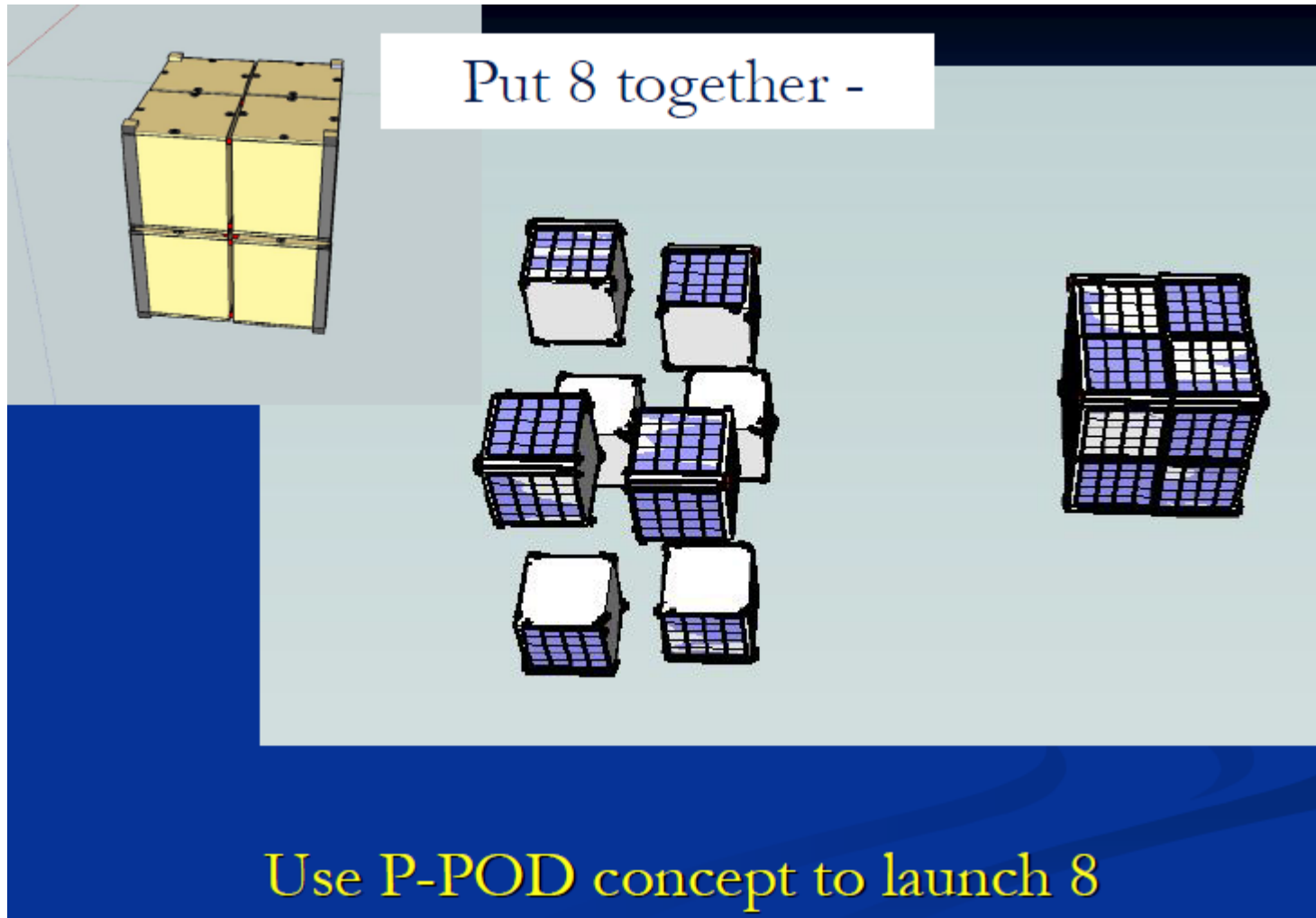
April 22-24, 2009

2009 Cal Poly Developers' Workshop
California State Polytechnic University
San Luis Obispo, CA

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Some work on small sats smaller than CubeSats

Reduce Launch Costs!!!!!!



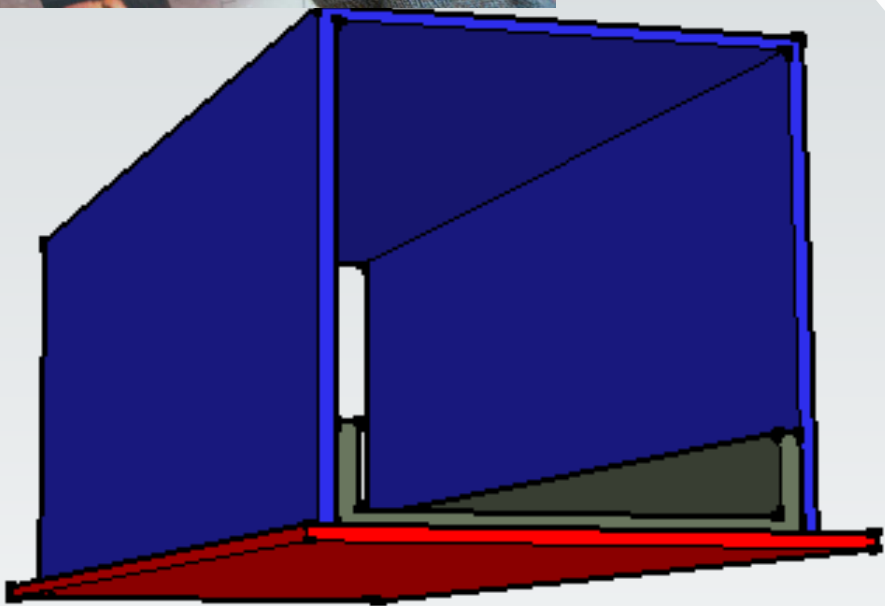
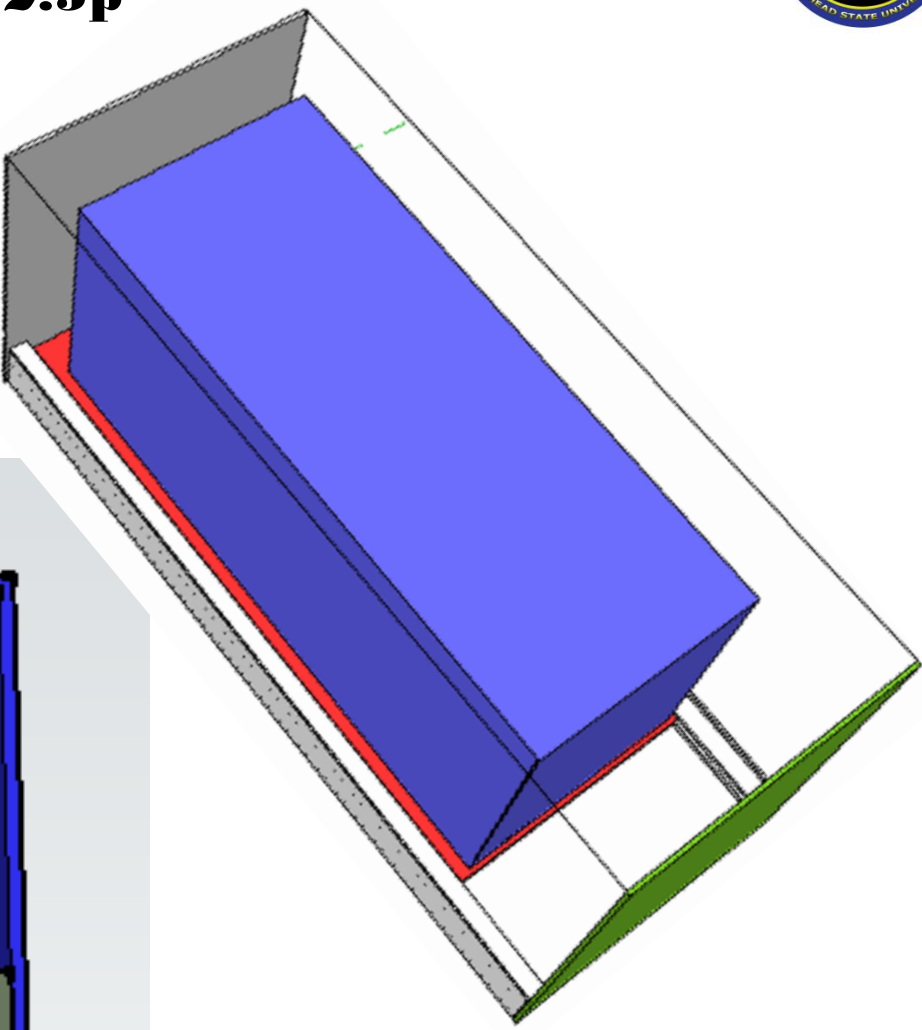
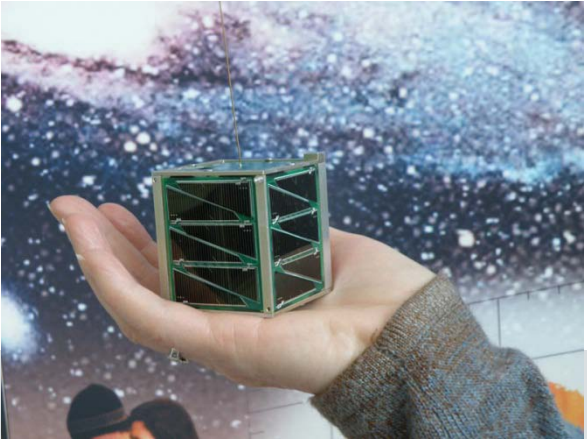
Put 8 together -

Use P-POD concept to launch 8

Some work on small sats smaller than CubeSats



Evolution to a 2.5p PocketQube



▪ **Some work on small sats smaller than CubeSats**



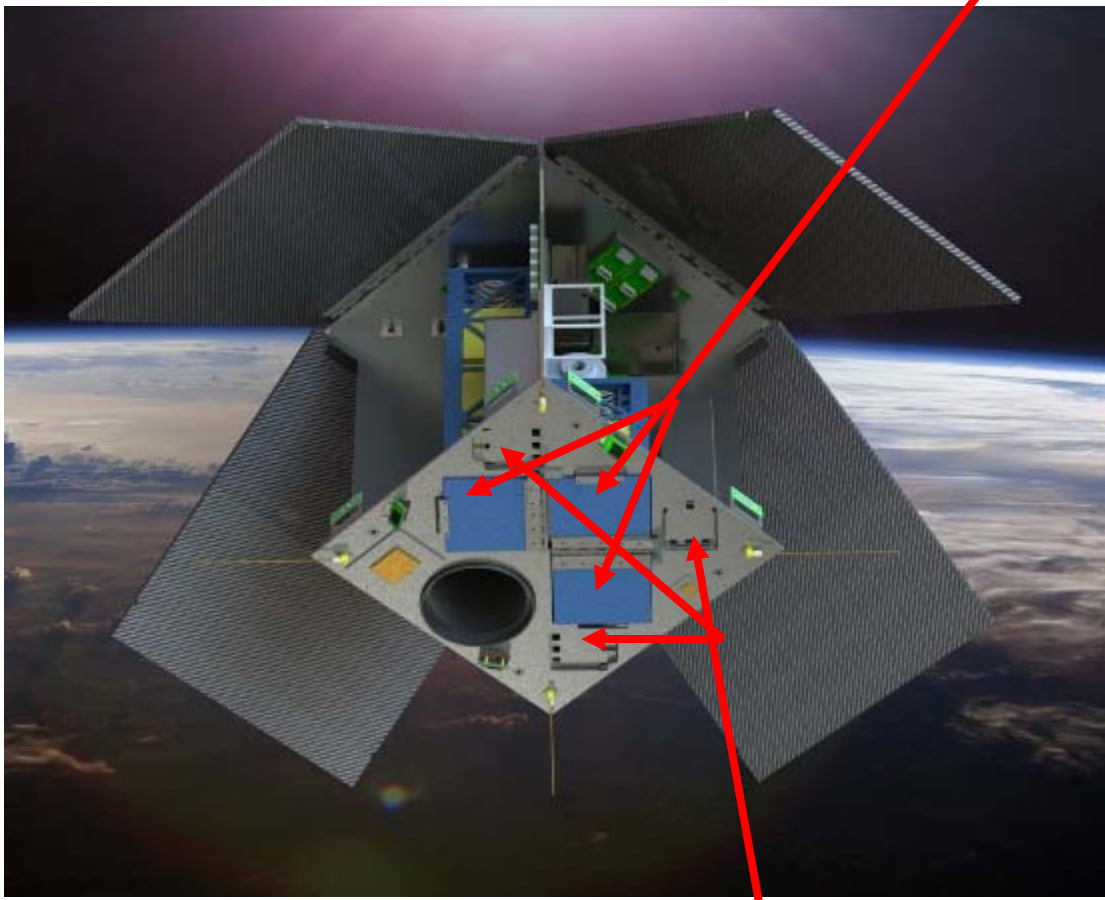
Evolution to a 2.5p



Some work on small sats smaller than CubeSats



UniSat-5
CubeSats
Launchers



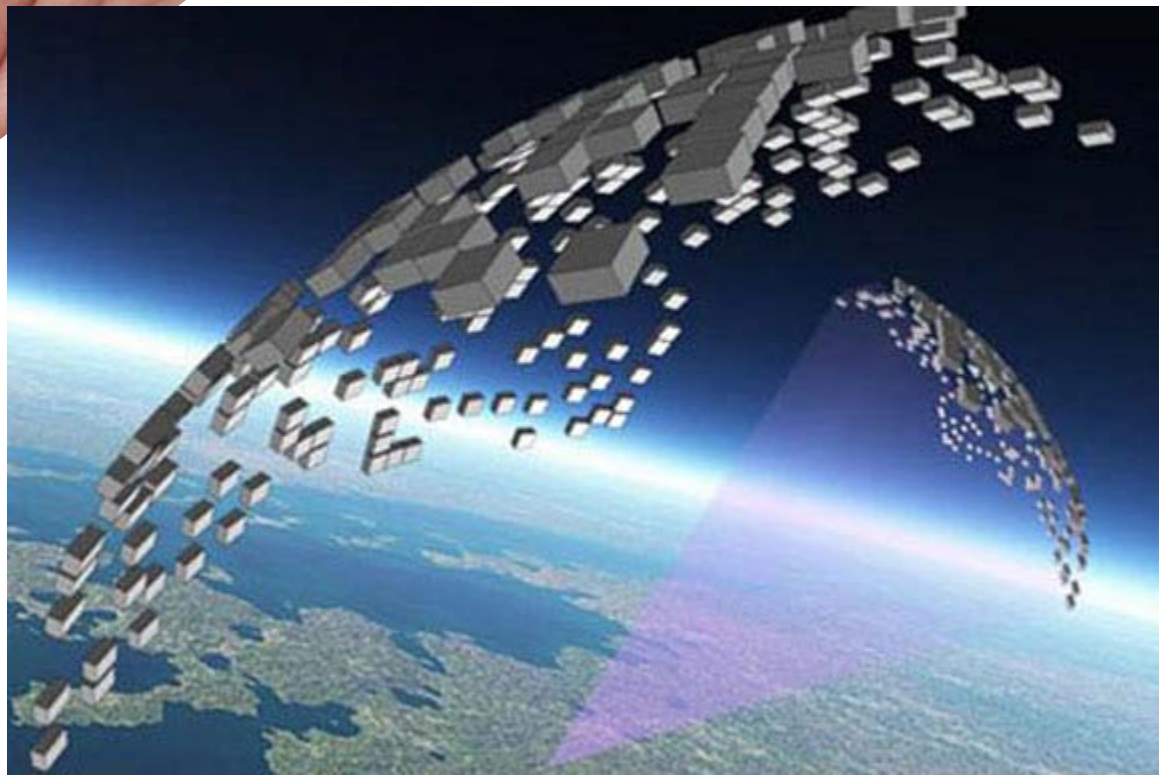
PocketQube
Launchers

Dnepr Launch
November, 2012



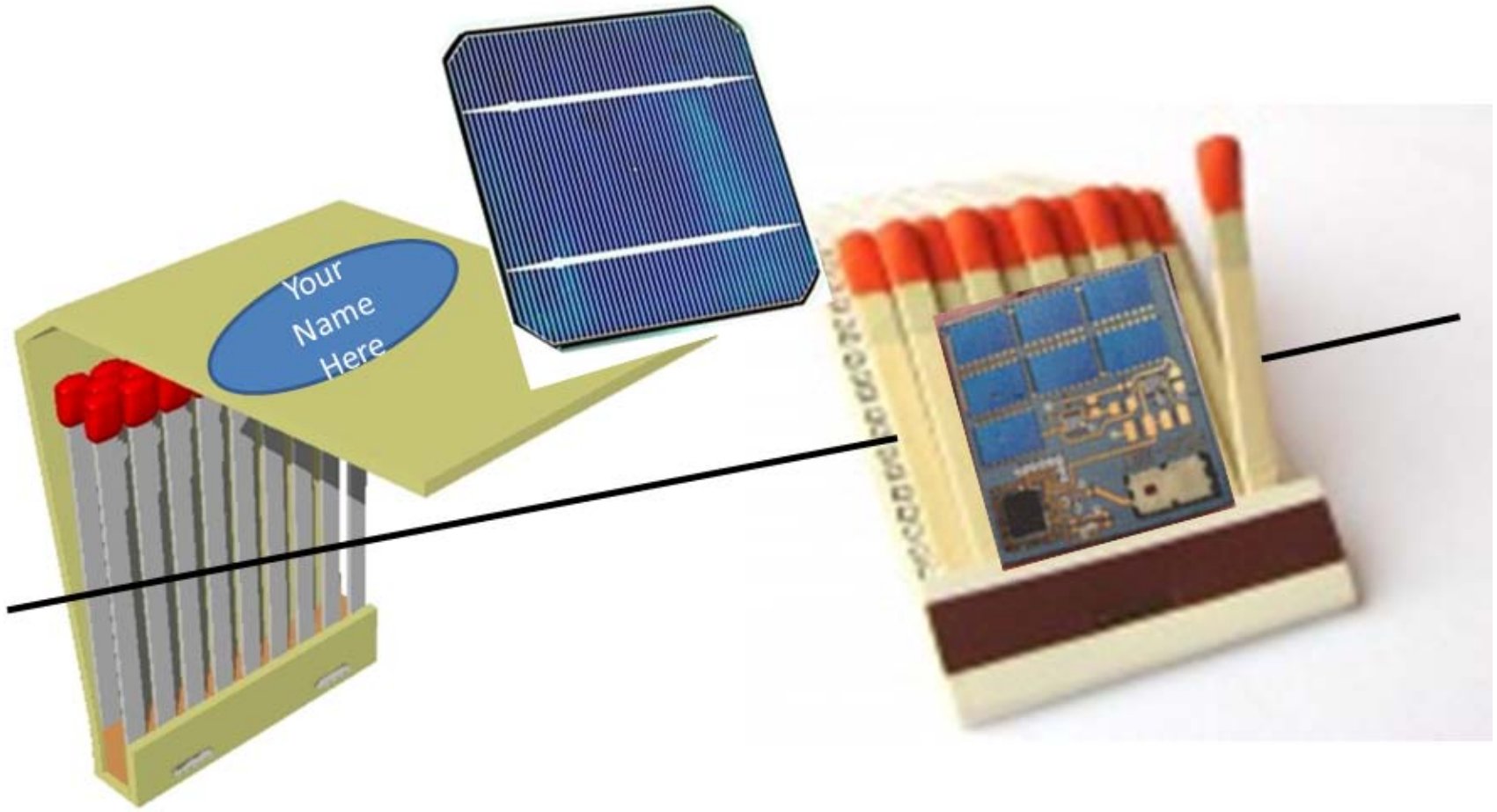
- **An additional approach**

Cornell's ChipSat



- **An additional approach**

MatchBookSat



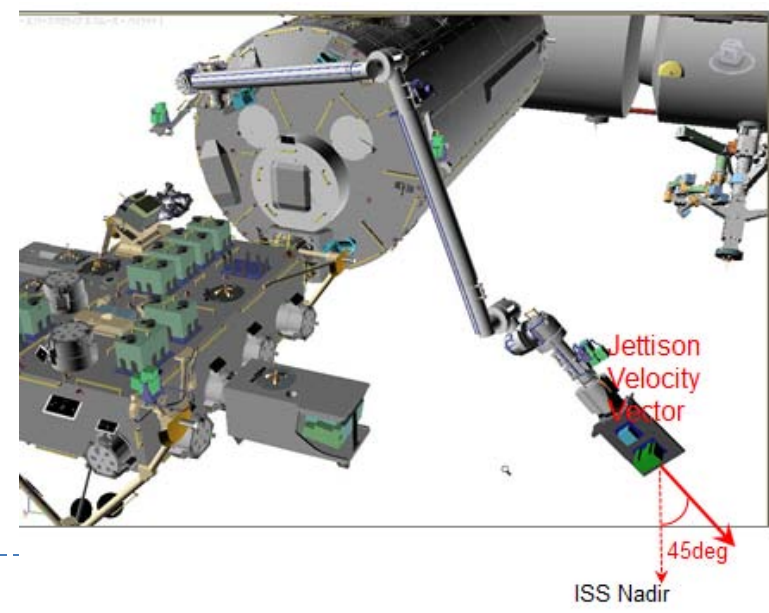
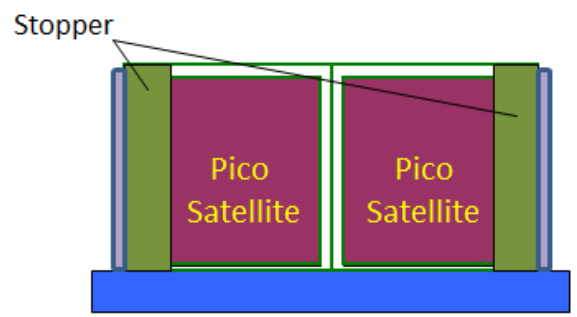
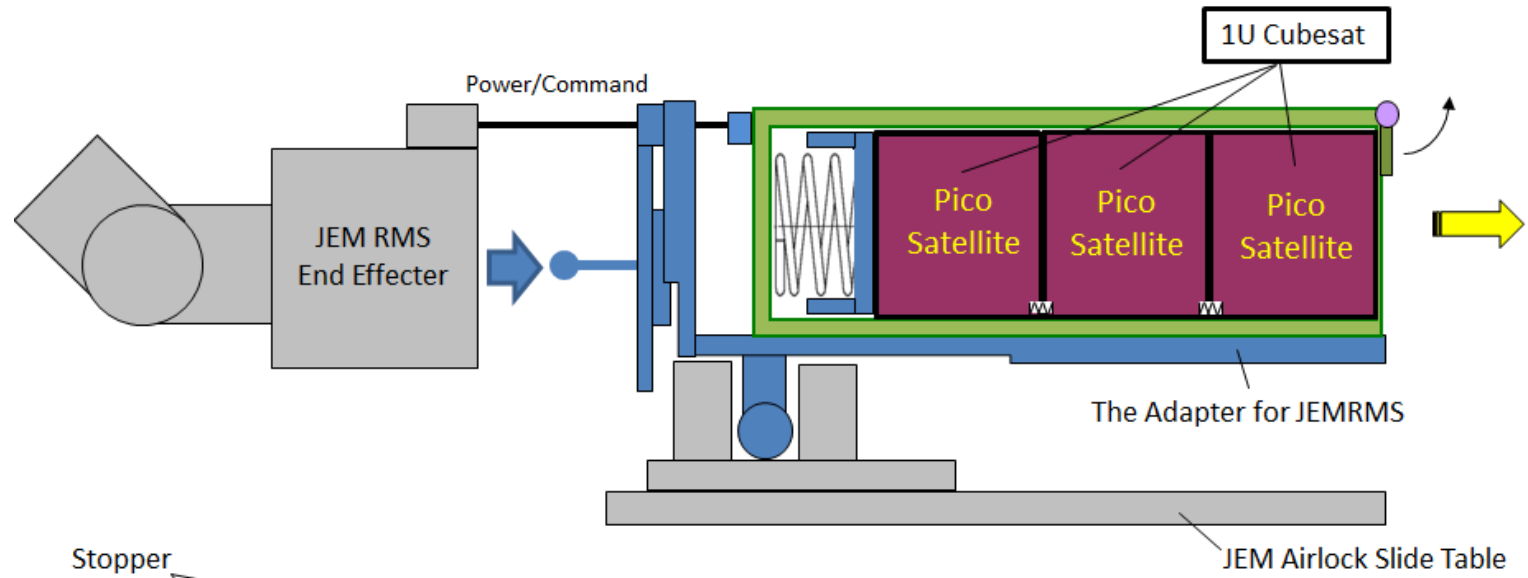


- **An additional approach**

**You get your own
MatchBookSat Now**

**Launch from ISS JEM
Module**

An additional approach





- **An additional approach**

**One CubeSat now
Reserved for
MatchBookSat launch on
the ISS for mid 2014**

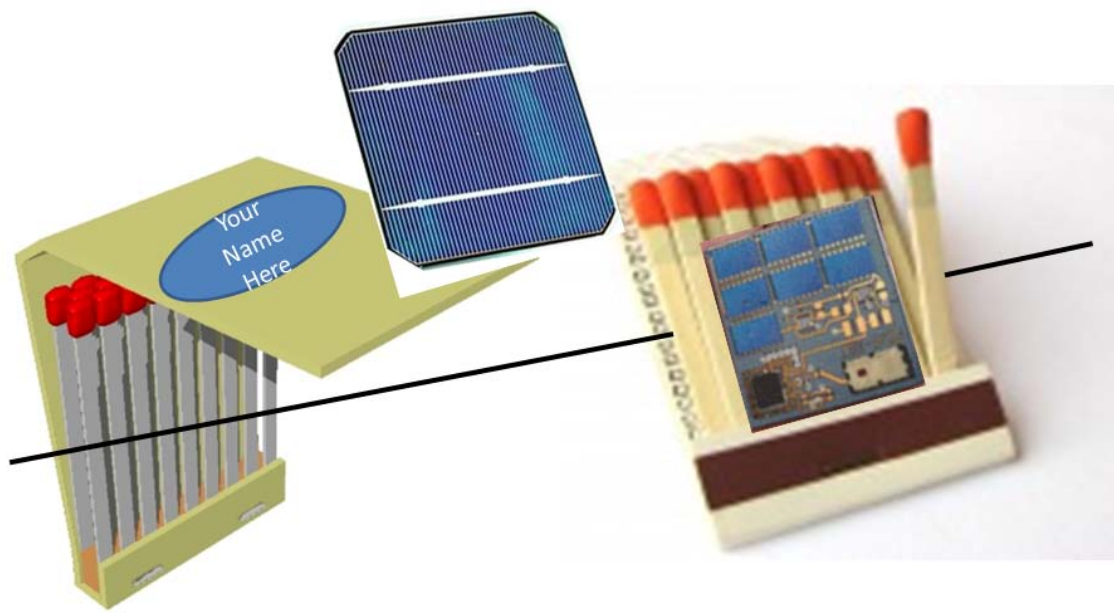
**Launch your own
personal MatchBookSat**

Developing Apps for Space Experiments



Your Personal Spacecraft

MatchBookSat



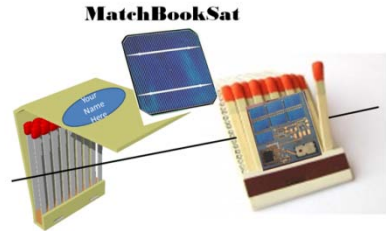


■ Developing Apps for Space Experiments

Your Personal Spacecraft

Your Personal Spacecraft

Who wants their own
Personal Spacecraft?



Now do space research for
the Common Man!



▪ **Developing Apps for Space Experiments**

Do biological experiments.

**Use space for the benefit of
the Common Man**

**Use the space environment to
find cures for:**

Cancer

Alzheimer's

Muscular Dystrophy

-
-
-



- **An additional approach**

Proposed MatchBookSat Specs

Solar cell ops only - no battery

Transmit Morse code, on UHF

Use microlabs for experiments

Data format:

Call sign, time, X one bit

0 - no change

1 - change detected

Binary Spacecraft



■ Developing Apps for Space Experiments

If we could do 300 biological experiments each 6 months, what can we learn?

With Your Personal Spacecraft?



**How many want a personal
MatchBookSat of your own?**

You got one now.

**Would you support
MatchBookSats launches for
2014?**



Give me your thoughts on how you would make a and use a MatchBookSat. (take business card & give me yours in notebook on table)

Want to have presentations on MatchBookSats at Cal Poly Workshop in April 2013?



Thanks

Questions?