Small Group Discussion Session

Group 1: Opportunities and challenges associated with interplanetary nanosatellite missions

- CONCLUSIONS -

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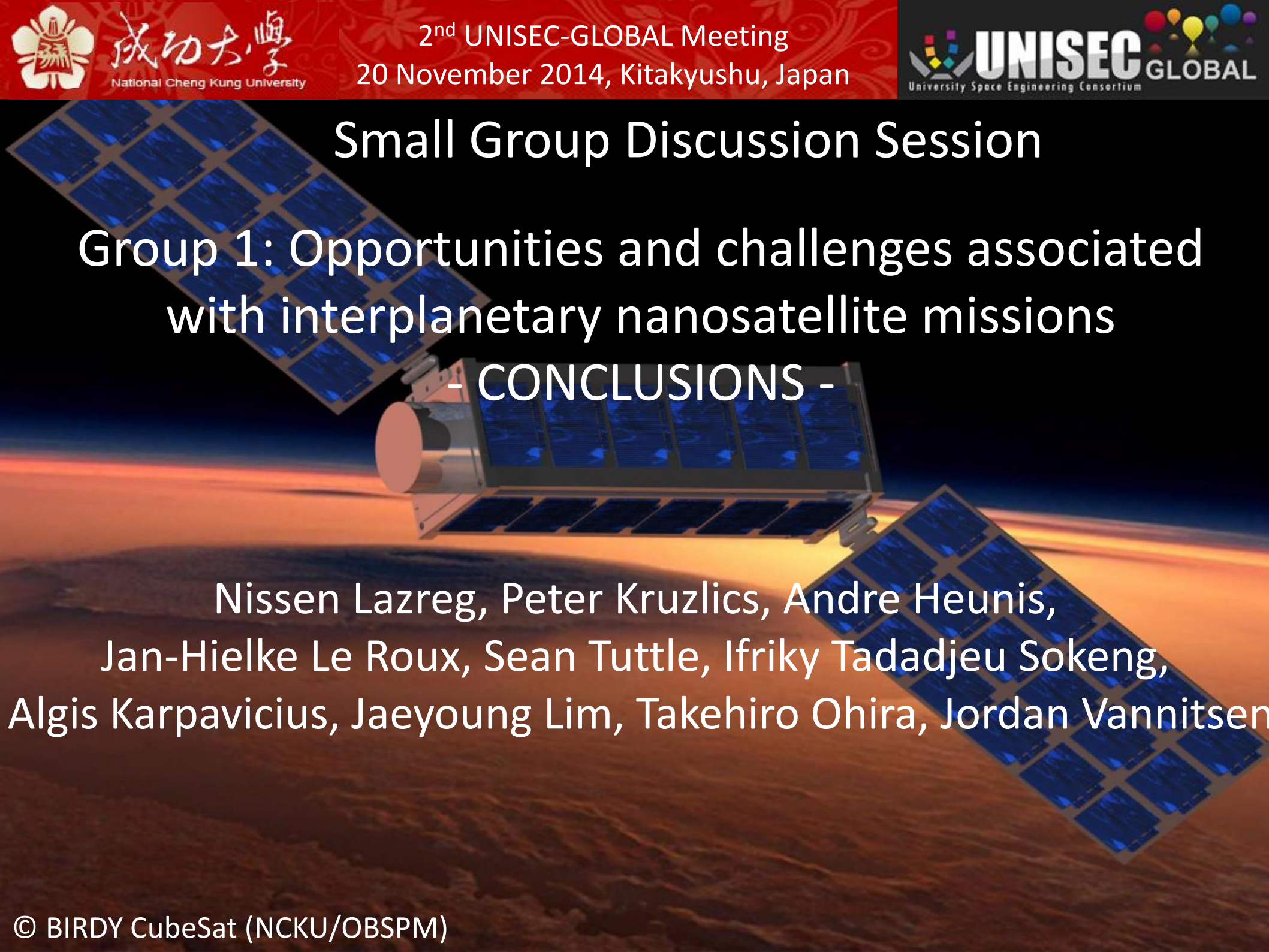


- CHALLENGES
- OPPORTUNITIES

CHALLENGES

- How to get there?
- How to communicate?
- How to survive?
- How to demonstrate usefulness?

CHALLENGES

- How to get there?

- GTO and go;
- Interplanetary host mission;
- Photonic propulsion;
- Hybrid/Electrical propulsion;
- Future concepts from ISS?
- …?

Onboard propulsion: small orbit corrections/attitude control.

CHALLENGES

- How to communicate?

- Laser;
- X-band/Ka-band;
- Satellites/rovers as data relay;
- Ground stations on celestial bodies;
- Hansel and Gretel configuration;
- …?

CHALLENGES

- How to survive?

- Thermal: internal heaters, coating, MLI;
- Radiations/degradation: shielding specific components;
- Micrometeorites: shielding;
- Internal clock shift: If no comm, how to?
- …?

CHALLENGES

- How to demonstrate usefulness?

- Science: Different way of doing it, precursor.
- Technology demonstrator: Bigger mission, network, re-entry;
- Business: More affordable for privatisation.
- …?

OPPORTUNITIES

SCIENCE

→ MULTI-SITE SIMULTANEOUS MEASUREMENTS.

→ MULTIPLE "BULLETS".

→ MISSIONS FREQUENCY.

Space weather, radio astronomy, etc…

DEMONSTRATOR

→ TECHNOLOGIES.

→ SCIENCE "BIG MISSIONS" PRECURSOR.

Propulsion, payload, communications, etc…

BUSINESS

→ EASIER PRIVITASATION.

Marketing, space meteorology Data, interplanetary com., Space test-platform, etc…

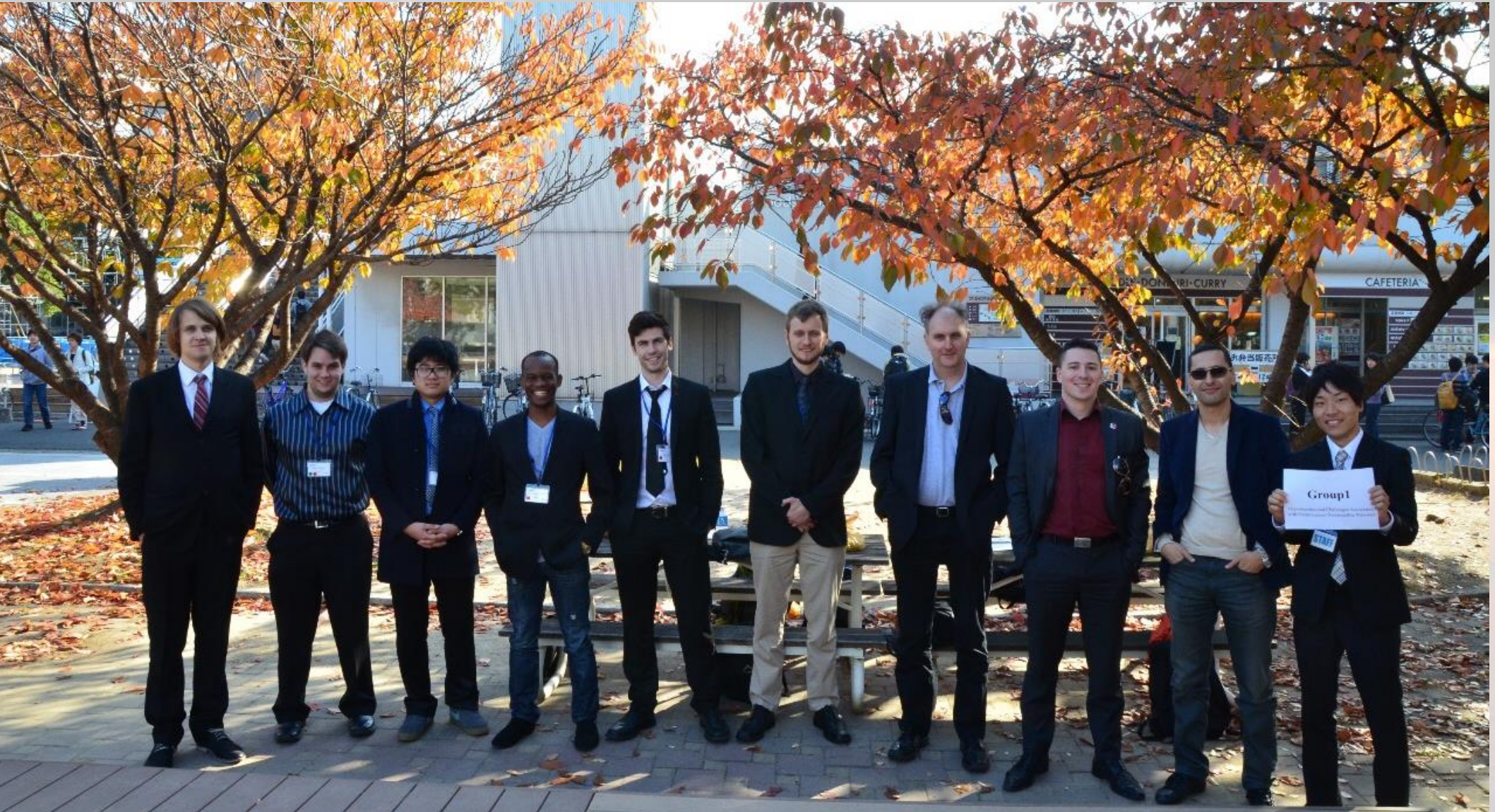
CONCLUSIONS

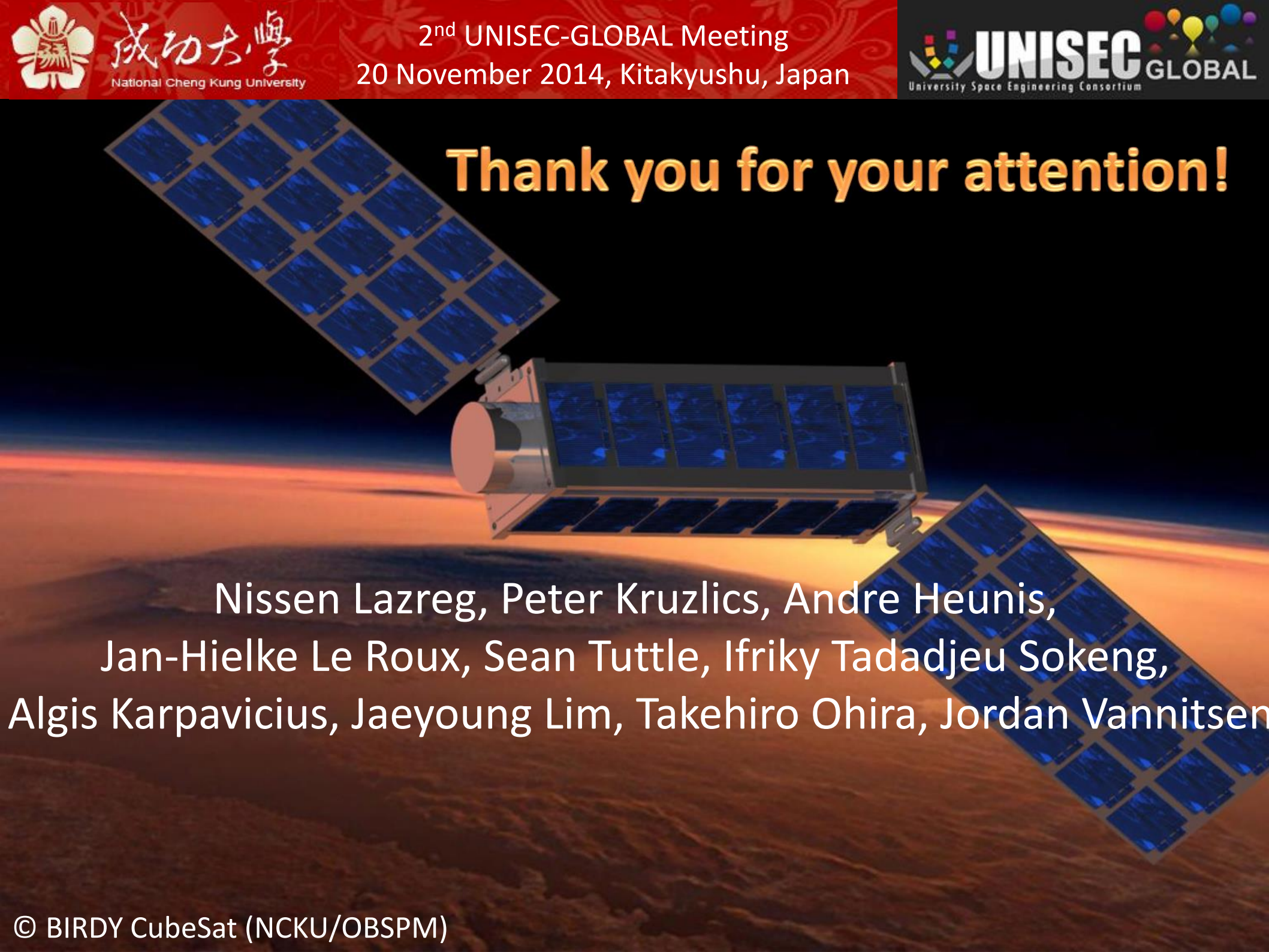
- Many challenges!
- BUT many new opportunities!

NANOSATELLITES CANNOT DO SAME AS BIG SATELLITES
BUT CAN DO DIFFERENT THINGS!

BEYOND LEO SPACE MISSIONS TO BE THOUGHT DIFFERENTLY!

THANKS EVERYBODY!





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