



**CLIMATE AND SPACE
SCIENCES AND ENGINEERING**
UNIVERSITY OF MICHIGAN

Mission Team Formation and Proposal Process at the University of Michigan

Tuija I. Pulkkinen
University of Michigan, Ann Arbor
tuija@umich.edu

A Humboldtian University

Collection of autonomous scholars with high degree of academic freedom

- "Best argument wins"
- "Entrepreneurs at a startup incubator"
- Excellent staff support for proposals, grants, and contracts



COLLEGE OF ENGINEERING

CLIMATE AND SPACE SCIENCES AND ENGINEERING

UNIVERSITY OF MICHIGAN



One of 13 departments in the College of Engineering

- ~30 T&TT faculty,
~30 research scientists

Closely tied to and co-located with the Space Physics Research Laboratory

- ~25 space engineers covering
various areas of expertise

Participation in ~40 NASA space hardware programs

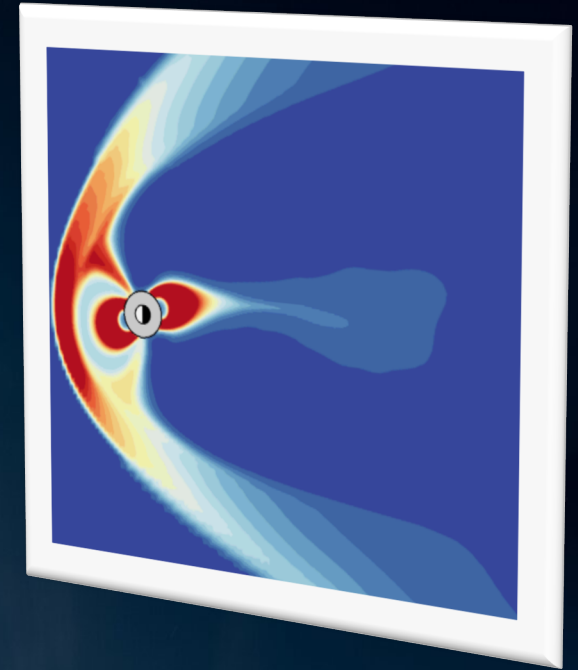
- From Voyager to Solar Orbiter
- Cubesats





Mission: to provide scientific, technological and educational leadership in climate and space research to Michigan and the world.

- Space-borne, airborne, and ground-based observations
- Modeling and high-performance numerical simulations
- Space weather applications & climate change solutions



Proposal process

Mission/instrument concept identification

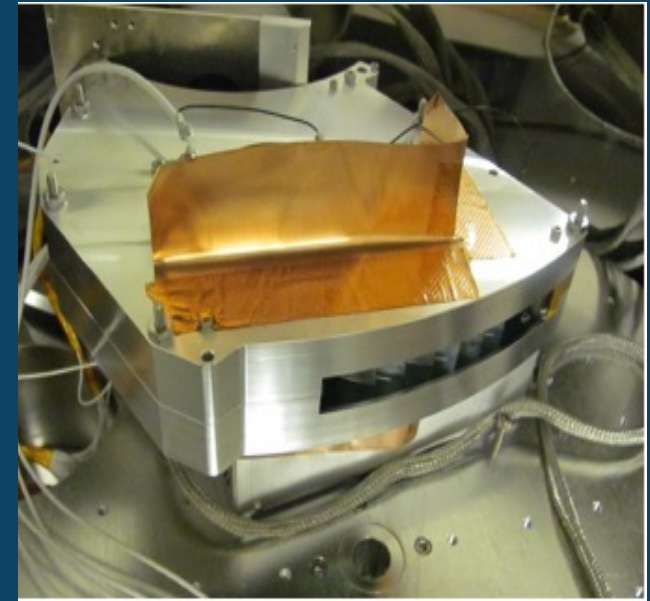
- Bottom up activity from faculty or students

Development support

- Space Physics Research Lab technical support
- College of Engineering financial support
- Department / university support for proposal preparation including budgets, compliance, etc.

Decision on PI

- Department/College/University do not influence PI selection or limit submissions
- Level of support depends on strategic priorities



*Laboratory prototype of the energy per charge selecting entrance system for SPICES solar wind particle detector
PI Prof. Sue Lepri*



Challenges in a university setting

University expectations: research, teaching, service

- Research productivity requires supporting graduate students and postdocs
- Teaching schedule sets pace during terms

Large project challenges

- Time commitment for PI is at odds with tenure process & requirements
- Engineering staff on soft money has limited availability in proposal phase

Developing expertise and competences

- For any individual PI, the opportunities are few and far between
- Project continuity poses challenges in maintaining expertise within team



What would help ?

University actions

- Institutional funding for the engineering teams to maintain and develop competences and support proposal phase
- Recognition of PI or other significant roles in proposals and projects in the tenure process
- Competence development in leadership and management tasks and processes

NASA actions

- Recognition of key universities in hardware development, regional centers of excellence
- More frequent instrument AOs to facilitate PI growth
- Development funding for raising instruments up the TRL ladder
- Funding for pre-phase A concept studies



COLLEGE OF ENGINEERING

CLIMATE AND SPACE SCIENCES AND ENGINEERING

UNIVERSITY OF MICHIGAN



Diversity at universities

Recruitments are key to diversifying universities

- Efficient recruitment processes that address diversity directly
- Personal networks to support open searches
- Clear communication of diversity goals

Once recruited, support women & URM faculty members

- Role models for diverse leaders / leadership
- Enforce message that diverse leadership is a wanted goal
- Engagement of faculty in leadership training and projects
- Develop trust



COLLEGE OF ENGINEERING

CLIMATE AND SPACE SCIENCES AND ENGINEERING

UNIVERSITY OF MICHIGAN

Thank you !