

## CSES Currently Funded Projects 2020

### Astrophysics, Cosmology (Focus Lead: Chris Fryer, CCS-2)

PI	Group	Program	Title
Fan Guo	T-2	Student Fellow	Kinetic Processes of Particle Acceleration and Radiation in Relativistic Astrophysical Plasma Outflows
Matthew Mumpower	T-2	Student Fellow	Nuclear Physics for Nucleosynthesis: The Astrophysical Merger of Neutron Stars
Chengkun Huang	T-5	Student Fellow	Machine Learning Framework for Turbulence3 Sub-Grid Modeling in Core-Collapse Supernovae
Patrick Killian	T-2	Chick Keller PD	Kinetic Studies of Magnetic Turbulence, Dissipation and Particle Energization
Hui Li	T-2	Student Fellow	Addressing New Challenges to Planet Formation Revealed by ALMA
Jonah Miller	CCS-2	Rapid Response R&D	Blue Kilonova from Black Hole-Neutron Star Disks

### Earth Systems (Focus Lead: Sanna Sevanto, EES-14)

PI	Group	Program	Title
Matthew Hecht	CCS-2	Student Fellow	Climate System Response as Understood Through a Novel Analysis of Ocean Circulation and Energetics
Scot Elliott	CCS-2	Student Fellow	Arctic River-Delta-Coastal Chemistry in the DOE Hierarchy of Models
Sanna Sevanto	EES-14	Student Fellow	Micron-level Spatial Resolution Gene Expression for Plants
Carolyn Begeman	T-3	Chick Keller PD	Large Eddy Simulation of the Sub-ice-shelf Oceanic Boundary Layer
Ann Junghans	NEN-1	Rapid Response R&D	Influence of proliferation indicators on soil biofilm
Anastasia Piliouras	EES-14	Rapid Response R&D	Thermokarst lake morphology and its impact on heat fluxes in permafrost landscapes
Sara Del Valle	A-1	Rapid Response R&D	Mosquito tracking using data from the upcoming NASA SWOT Mission

### Space (Focus Lead: Vania Koleva Jordanova, ISR-1)

PI	Group	Program	Title
William Daughton	XTD-PRI	Student Fellow	Comparative Studies of Magnetic Reconnection in Kinetic Simulations, Laboratory Experiments and Magnetospheric Observations

Kataryna Yakymenko	T-5	Chick Keller PD	Wave-Particle interactions in the near-Earth environment
Gian Luca Delzanno	T-5	Student Fellow	Kinetic plasma turbulence at low electron beta
Andrew Walker	ISR-3	Rapid Response R&D	Analysis of DREAM Reconstructed Fluxes
Oleksandr Koshkarov	T-5	Rapid Response R&D	Global magnetospheric simulations of Ganymede with fluid-kinetic models
Darrel Beckman	ISR-4	Rapid Response R&D	High Voltage High Power Development for Space Based Instruments

**Geophysical (Focus Lead: Charlotte Anne Rowe (Char), EES-17)**

PI	Group	Program	Title
Youzuo Lin	EES-17	Student Fellow	Next Generation Microseismic Event Detection
Artaches Migdissov	EES-14	Student Fellow	REE in Hydrothermal Systems: From Ore Formation to Industrial Extraction
Christopher Ren	ISR-3	Chick Keller PD	Earthquake Interaction
Esteban Rougier	EES-17	Large University	Correlating Damage, Fracture and Permeability Enhancement in Rocks subjected to High Strain Rate Loading
Christopher Alcorn	EES-14	Rapid Response R&D	Hydrothermal Transport of RadioIodine and Implications in the Detection of Clandestine Underground Nuclear Events
Neill Symons	EES-17	Rapid Response R&D	Formulating seismic association for efficient solution with quantum computers

**Planetary (Focus Lead: Lisa Danielson, ISR-2)**

PI	Group	Program	Title
Carene Larmat	EES-17	Student Fellow	How hard should Mars be hit so Insight SEIS can unravel its hidden history?
Amanda Evans	B-11	Rapid Response R&D	Continuous Flow Biocatalytic Production of Green Propellant Fuel from Biowaste for Deep Space Travel
Daniel Coupland	ISR-1	Rapid Response R&D	Neutron lifetime analysis on the Lunar Prospector data
Wendy Caldwell	XCP-1	Chick Keller PD	Modeling Impacts on Rocky Asteroids for Potentially Hazardous Object Mitigation

**Special Rapid Response**

<b>PI</b>	<b>Group</b>	<b>Program</b>	<b>Title</b>
Lisa Danielson	ISR-2	Special Rapid Response	Working in Space: The Future of Space Exploration through Microgravity Experiments and In-Situ Resource Utilization