

**Budget Timeline:**

Start date: August 17, 2020 (Beginning of fall semester, year 1)

End date: July 31, 2023 (End of summer semester, year 3)

*Aug. 2020 - July. 2021 (year 1)*

- Develop and test triggered star formation simulations in Enzo for Project 1
- Run and maintain triggered star formation simulation suite on PACE at Georgia Tech.
- Begin data analysis on triggered star formation simulations.
  - Generate a pipeline for efficient analysis as new simulations are completed.
- Finish data analysis.
- Create publication-ready plots.
- Build a story for triggered star formation paper.
- Begin writing triggered star formation paper.

*Aug. 2021 - Jul. 2022 (year 2)*

- Finish writing triggered star formation paper.
- Submit the paper to a journal by the end of the semester.
- Project 1 complete.
- Develop and test the metal tracer particles in Enzo for Project 2.
- Generate initial conditions for the cosmology simulation.
- Revise and resubmit triggered star formation paper if necessary.
- Run fiducial cosmology simulation with metal tracer particles and core-collapse supernovae only.
- Begin data analysis (Locate regions enriched by metals from Pop III stars)

*Aug. 2022 - July. 2023 (year 3)*

- Run additional cosmology simulations with different initial mass functions and also include faint, jet, and pair-instability supernovae.
- Continue data analysis (study where Pop II stars form and how they are enriched with Pop III metals)
- Create publication-ready plots.
- Build a story for second paper.
- Begin writing second paper.
- Finish second paper.
- Submit the paper to a journal by the end of the semester.
- Organize data from both projects and make publicly available.

**Budget Narrative:**

This grant will cover the costs of the FI's graduate student stipend, travel expenses, and student fees for the fall, spring, and summer semesters of the three years of support from the FINESST grant. These funds will allow the FI to make a living wage, complete the projects described above, and aid in his professional development. This budget includes fees associated with attending conferences and workshops to develop the skills and professional experience necessary for him to grow and succeed as a Ph.D. student and professional scientist. In the past, the PI has paid for travel expenses so the FI can attend conferences and workshops. We include these expenses in the FINESST budget. At conferences, the FI will present the research described in the projects above. In the budget, we also include the fee for Georgia Tech's mandatory health insurance.

**Itemized Budget:**

Student stipend: \$35,000/year

Tuition, fees, and health insurance (6.2% of stipend & \$5K tuition remission): \$7,170/year

Travel expenses: \$2,830/year

Total yearly budget: \$45,000

Total FINESST budget (3 years): \$135,000