FLATIRON INSTITUTE
Division of Simons Foundation

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April 17, 2018

Dear Colleagues,

As director of the Center for Computational Astrophysics at the Flatiron Institute, I am writing to express our strong support for the software development effort led by Britton Smith, as proposed to the Cyberinfrastructure for Sustained Scientific Innovation program of the NSF.

The Center for Computational Astrophysics (CCA) aims to become a focal point for computational astrophysics around the world and plans to develop the computational methods and tools needed for calculations, simulations and analyses in astrophysics. The CCA makes up one of the four centers of the Flatiron Institute. The Flatiron Institute is a major, new internal scientific unit of the Simons Foundation, focused on the computational aspects of a wide range of basic science. Its work is primarily comprised of analyzing externally generated data sets and developing new methods and algorithms to conduct such analyses. Thus, its output will be both original scientific discoveries and new infrastructure enabling such discoveries by the community at large.

In steady state, CCA will be comprised of 50–60 researchers, ranging from postdoctoral researchers, research scientists, and group leaders. Research interests at the CCA are varied and currently include galaxy formation, cosmology, gravitational waves, exoplanets, stellar physics and compact objects, as well as Bayesian inference and machine learning. Computational resources are significant, with Flatiron clusters providing thousands of computational cores to its scientists.

Given that one of the central missions of the Flatiron Institute is the development of computational algorithms and software for the scientific community, it is natural to support projects such as the one described in this proposal. In particular, the proposed

open source software package connects very naturally to efforts of the CCA Galaxy Formation group led by Greg Bryan (joint with Columbia) and Rachel Somerville (joint with Rutgers). Therefore, we expect to support Britton Smith and collaborators by providing meeting space and logistical support for developer/user workshops as described in the proposal. We also expect that this will aid in making connections with other computational astrophysicists at the CCA (and beyond) who may make use of, or contribute to, the proposed software package.

We are excited by the opportunity this program will provide for enhancing our commitment to open software and increase our connections with outside computational groups.

Sincerely,

David Spergel,
Center for Computational Astrophysics, Director