



NATIONAL SCIENCE FOUNDATION  
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ALEXANDRIA, VIRGINIA 22314

NSF 20-018

## Dear Colleague Letter: Frontera Leadership-Class Computing Allocations

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November 6, 2019

Dear Colleagues:

Powerful new computing and data analytics capabilities are enabling novel discoveries and advances in knowledge not otherwise possible, which are in turn contributing to enhanced economic competitiveness and increased national security. Researchers in many areas of science and engineering (S&E) are pursuing innovative computational approaches to advance our understanding of the natural world, for example, by substantially increasing the resolution of computer simulations and expanding the use of predictive data-driven models derived from large experimental data sets often from disparate sources. As a result, advanced computational instruments with powerful computation and data analytics capabilities have become fundamental tools in S&E research.

With this Dear Colleague Letter (DCL), the National Science Foundation (NSF) seeks to inform the community about an opportunity to request access to Frontera, the recently-launched supercomputer hosted at the Texas Advanced Computing Center (TACC) at The University of Texas at Austin. Frontera, the most powerful academic supercomputer ever deployed by NSF, is a Dell EMC system with over 16,000 Intel processors as well as significant graphics processing unit, storage, and memory capabilities. More information about the system can be found at <https://www.tacc.utexas.edu/systems/frontera>.

Researchers supported by active NSF or other research awards may submit a request for an allocation on the Frontera system in one or more of the following categories:

**Leadership Resource Allocation** - Large allocations to S&E teams with strong scientific/engineering justifications for needing to access a leadership-class computing resource to enable research that would otherwise not be possible. Successful applicants must demonstrate strong readiness to use the allocated cycles, as well as existing peer-reviewed research funding to support the activities conducted on Frontera.

**Pathways** - Small allocations to S&E teams with strong scientific/engineering justifications for needing to access a leadership-class computing resource but without demonstrated code readiness to effectively do so. Successful applicants will use the allocation award to work with the Frontera project team to scale their codes to effectively use the system. Successful applicants must demonstrate existing peer-reviewed research funding to support the required code and algorithm development activities on Frontera. Additionally, early-career scientists and engineers with outstanding publication records investigating novel techniques for solving potentially transformative S&E research topics are encouraged to apply.

**Large-Scale Community Partnerships** - Extended time allocations of up to three years to support long-lived S&E experiments. Successful applicants must demonstrate existing peer-reviewed research funding to support the activities conducted on Frontera for the time period requested.

S&E teams with a Frontera allocation are expected to closely collaborate with the Frontera project team to prepare and port scientific/engineering codes at the largest scale to ensure efficient utilization, as well as attend an annual principal investigators (PI) meeting to collectively share their experiences on this unique resource. To support this collaboration, S&E teams that have successfully obtained a Frontera allocation will be invited to submit an NSF Travel proposal (see [https://www.nsf.gov/pubs/policydocs/pappg19\\_1/pappg\\_2.jsp#IIE9](https://www.nsf.gov/pubs/policydocs/pappg19_1/pappg_2.jsp#IIE9)) for funding consideration by the Office of Advanced Cyberinfrastructure (OAC).

Allocation requests for awards starting in April 2020 must be submitted directly to the Frontera project via the website (see <https://fronteraweb.tacc.utexas.edu/allocations/>), which provides more information on the submission process for each of the above allocation categories, and on the open peer review evaluation process.

Note that this Frontera-managed allocation submission and review process replaces the previous NSF Petascale Computing Resource Allocations (PRAC) Program.

Questions about this DCL should be directed to the cognizant program director:

- Edward Walker, phone: (703) 292-4863, email: [edwalker@nsf.gov](mailto:edwalker@nsf.gov)

Sincerely,

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