



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ENGINEER RESEARCH AND DEVELOPMENT CENTER
INFORMATION TECHNOLOGY LABORATORY
WATERWAYS EXPERIMENT STATION, 3909 HALLS FERRY ROAD
VICKSBURG, MISSISSIPPI 39180-6199

CEERD-IZP

30 July 2021

MEMORANDUM FOR HIGH PERFORMANCE COMPUTING ADVISORY PANEL

SUBJECT: Selection of Fiscal Year 2022 Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) Frontier Projects

1. Frontier Projects were established in FY 2014 to enable research, development, test, and evaluation outcomes that could not be achieved using typically available HPCMP resources alone. These projects are aligned with DoD mission priorities and are supported by multi-year investments in multi-disciplinary teams leveraging exceptional amounts of high performance computing resources. For FY22, we established two classes of Frontier Projects: (a) Foundational Research and Engineering and (b) Applied Acquisition and Sustainment—in response to differing high performance computing requirements for projects in different phases of the acquisition life cycle.

2. Based upon the recommendation of my management team and the evaluation criteria specified in the FY 2022 call for proposals, I have selected one Applied Acquisition and Sustainment Frontier Project for award:

M&S for Ground Test and Evaluation, Jason Klepper, Arnold Engineering Development Center.

In addition, I have selected four Foundational Research and Engineering Frontier Projects for award:

a. *Multi-Fidelity Design Optimization of Rotating Detonation Engines*; Matthew Harvazinski, Air Force Research Laboratory.

b. *Large-Scale Integrated Simulations of Transient Aerothermodynamics in Gas Turbine Engines*; Luis Bravo, Army Research Laboratory, and Russell Powers, Naval Air Warfare Center.

c. *HPC Enabled, Digital Transformation for Laser Weapon Systems Development*; John Tam, Air Force Research Laboratory.

d. *Identifying Ultra-High-Temperature Ceramics in Multi-Component Chemical Space for Hypersonic Technologies*; Stefano Curtarolo, Office of Naval Research.

CEERD-IZP

SUBJECT: Selection of Fiscal Year 2022 Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) Frontier Projects

3. These five projects were selected from proposals submitted in response to the FY 2022 call. Each was peer reviewed by a technical evaluation panel and examined closely by the Services and Office of the Secretary of Defense for mission relevance.
4. The HPCMP will allocate resources for each selected project with a planned start date of 1 October 2021. The HPCMP resource management team will review the progress of each project on a quarterly basis. Each project will be required to regularly report its status. We have high expectations that all Frontier Projects will produce notable achievements and strong mission impacts.
5. Please join me in congratulating the members of these new Frontier Projects. My point of contact for this activity is Mr. Michael Ausserer, Associate Director for Resource Management. He may be contacted by phone at 240-425-9057 or by e-mail at michael.f.ausserer.civ@mail.mil.

WILL MCMAHON, PhD, PE
Director, High Performance
Computing Modernization Program