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High Performance Research

University of Dayton

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High Performance Research

The University of Dayton Research Institute has been awarded a $21.6 million, indefinite-delivery, indefinite-quantity Air Force contract for research and development in aerospace engine combustion technologies and components.

Goals of the program include improving engine performance and fuel efficiency, reducing pollutant emissions, increasing engine reliability and lowering maintenance costs.

Working in Air Force Research Laboratory propulsion directorate labs at Wright-Patterson Air Force Base, researchers in the Research Institute’s energy and environmental engineering division will perform basic, applied and advanced research, including modeling and simulation, analysis and experiments, in order to better understand aerothermal and combustion processes in gas-turbine, pulsed-detonation and piston engines.

In addition, the program is expected to expand the science and technology base for new and emerging combustion processes in advanced propulsion systems. The award included an initial work order for basic research in combustion. Researchers will design, fabricate, assemble, instrument and develop tests and apparatus to perform experiments in research areas including flame chemistry, turbulence-chemistry interaction, emissions formation, alternative fuel combustion and more. The first work order has a $7 million ceiling, of which $40,000 was obligated at the time of the award.

Steve Zabarnick, head of the energy and environmental engineering division, said developing a better understanding of combustion processes will enable the development of higher performing, less polluting engines.

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