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## Sustained Research Partners

University of Dayton

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## Sustained Research Partners

The University of Dayton Research Institute has been awarded a \$43-million ceiling Air Force contract to perform a comprehensive program of research and development in nonmetallic materials for maintenance, repair and manufacture of Air Force air, space and ground vehicles.

The seven-year contract supports the Air Force Research Laboratory's systems support division, and was awarded with an initial \$40,000 task order.

The contract allows UDRI researchers on campus and at Wright-Patterson Air Force Base to continue a wide variety of activities in adhesives, sealants, elastomers, textiles, composites and other materials they've performed for the Air Force for nearly 40 years through a series of contracts.

"Our goal is to provide research, development and expertise in nonmetallic materials, processes and new technologies designed to improve systems performance and capability, while reducing risk, cost and environmental impact," said Dan McCray, leader of UDRI's aerospace materials sustainment group, who will serve as principal investigator for the work. "We work closely with AFRL engineers to identify, evaluate and even develop new materials and application processes for legacy and future aircraft. We also provide assistance in transitioning those new technologies into practical application."

Nonmetallic materials such as sealants and elastomers are used throughout aircraft and other vehicles as fluid barriers, gap fillers, vibration suppression and other applications that require a non-structural material. In this particular program, researchers will also work with adhesives and composite materials, which are used in place of metallic materials to help decrease aircraft weight.

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"Nonmetallic materials are incorporated into an aircraft during manufacture under very controlled conditions, meaning that the temperature, humidity and other ambient conditions in the factory are ideal for the processes," McCray said. "But when repairs are needed to aircraft, they're made 'in the field' at one of the Air Force bases, where environmental conditions for repair are not as easily controlled. So we look for the best materials to use and determine the optimal processes needed for good repairs in the environment in which they are made."

In addition to evaluating existing materials and processes to find the best technology for each application, researchers are often asked to evaluate new or emerging materials being considered for use in the manufacture of future aircraft.

"New materials being developed for the commercial market may also work well for Air Force applications, but first we need to determine whether they will meet Air Force specifications," McCray said.

For more information or interviews, contact Pamela Gregg, UDRI communications administrator, at 937-229-3268 or [Pamela.Gregg@udri.udayton.edu](mailto:Pamela.Gregg@udri.udayton.edu).

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