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NASA ANNOUNCES WINNERS OF SPACE LIFE SCIENCES OPEN INNOVATION COMPETITION

HOUSTON—The Space Life Sciences Directorate (SLSD) at NASA's Johnson Space Center in Houston has selected three winning solutions to address astronaut health and performance issues.

Full and partial financial awards were offered for solutions to three Challenges posted on the NASA Innovation Pavilion on www.InnoCentive.com, an open innovation marketplace with a global network of more than 200,000 problem solvers. A total of 1,317 Solvers from 65 countries opened “project rooms,” representing interest in assessing the Challenges. Ultimately, 128 submissions were received and evaluated for the three NASA Challenges.

The open innovation competition is a key component of SLSD’s broader framework for innovation, driven by its strategic plan. “Our first three Challenges yielded outstanding results,” said Dr. Jeffrey R. Davis, director of Space Life Sciences. “As an organization, we’ve learned a great deal about the process, and we were pleased with such widespread participation. The technology results led to new insights for food packaging, a compact exercise device and prediction capabilities for solar events. All of these findings are important new leads to enable long-duration human spaceflight.”

The NASA Innovation Pavilion provides Solvers the opportunity to develop innovative solutions to the unique challenges faced by NASA in achieving its mission to pioneer the future of space exploration, scientific discovery and aeronautics research. Solutions to these Challenges will benefit not only space exploration but also may further the development of commercial products and services in many industries on Earth.

“Accelerating the solutions to problems which affect astronauts will have a major impact on the future of our space program,” said Davis.

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“We are thrilled to see the success of these Challenges and the applicability of the solutions to a much broader range of problems in far-reaching fields. InnoCentive is pleased to work with NASA to apply the power of open innovation and the expertise of our Solver community to explore new approaches to significant problems in the aerospace industry,” said Dwayne Spradlin, CEO of InnoCentive.

Phase 1 of the competition was kicked off with three JSC Challenges. A fourth was later added by NASA’s Langley Research Center, and an award is pending. Three new Challenges were posted on the NASA Innovation Pavilion (https://gw.innocentive.com/ar/challenge/browse?pavilionName=NASA&pavilionId=463) on May 27 with a deadline of July 27.

The first two Challenges were Theoretical Challenges, which implement an idea but are not yet a proof of concept and require a written proposal only. They were evaluated on a theoretical basis considering the current state-of-the-art knowledge.

Yury Bodrov, a scientist from Saint Petersburg, Russia, won a partial award for his proposal of a new flexible graphite material for food packaging that is lightweight, has improved barrier properties, is compatible with sterilization processes and NASA disposal requirements and can maintain food quality over a three-year shelf life. Alex Altshuler, a mechanical engineer from Foxboro, Mass., won a full award for his proposal for a compact aerobic and resistive exercise device, which delivers the proper motions for exercises in space under very limited or zero gravity and meets very specific size and space requirements.

The third Challenge resulted in a full award to Bruce Cragin, a retired radio frequency engineer from Lempster, N.H., for his proposed solution for forecasting solar activity, which poses a significant radiation exposure risk to both humans and hardware during space exploration. Until now there has been no method available to predict the onset, intensity or duration of a solar particle event. Cragin’s solution allows for a 24-hour forecast window of event onset with 75 percent accuracy. This challenge was called a Reduction to Practice Challenge, which results in a prototype that proves an idea and requires the Solver to submit a validated solution.

“The forecasting solar activity submission was thorough. It addresses the challenge requirements and exceeds them with respect to forecast confidence above random prediction,” said Dr. Dan Fry, scientist, Space Radiation Analysis Group.

The fourth Challenge is a Theoretical Challenge for coordination of sensor swarms for extraterrestrial research.

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