

Asian Try Zero-G 2022 Experimental Equipment Launched to ISS

Overview

Astronaut Koichi Wakata, who has been on the ISS/Kibo since October 2022, will perform the space experiments proposed by youth in the Asia-Pacific region (Asian Try Zero-G 2022). Six themes have been selected, and five new experimental items have been manufactured. In preparation for launch, JAXA inspected the items, including weight, size, potential hazards to the crew, and whether the experiment would perform as expected. They were then successfully cleared by JAXA's safety review.

Each experimental item was attached with shatterproof hook-and-loop fasteners and a sticker label, then packed as a flight package for loading onto the launch vehicle. The packages were handed over to the cargo team at JAXA Tsukuba Space Center on September 12, 2022, and transported safely to NASA, USA.



Photo Left: Inspection



Photo Right: Delivery to the cargo team



Photo: Flight Package for Asian Try Zero G 2022



Photo: SpX-26 launched from Kennedy Space Center, U.S.A.
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The experimental items were loaded by NASA onto a rocket and launched to the ISS by Dragon CRS-26 (SpX-26) on November 27, 2022 (Japan Standard Time). The experiments in space will take place around January 2023.

Principal Experimental Items

	Country/Region	Title of Experiment	Items
1	Japan	Self-assembly of granular gas and three-dimensional pattern formation in a microgravity environment	Clear ball and background paper
2	The Philippines	Rotation of 'Dumbbell-shaped' objects in Space	Using Kibo's experimental equipment
3	Singapore	Double Pendulum in space	Double pendulum
4	Taiwan	The Water Vortex in Zero Gravity Condition	Bottle with colored water
5	Thailand	Water sphere disturbance in zero gravity	Iron ball and wooden ball
6	Thailand	Study of the height of water which is risen up in microgravity	Variety of tubes and container with colored water

Description and creative points of each experimental item (Flight Item)

Japan | Self-assembly of granular gas and three-dimensional pattern formation in microgravity environment

Approximately 4,000 copper particles are sealed in a plastic sphere. To ensure the successful filming of the experiment, JAXA included a white drawing paper screen for the background. The paper can be removed from the zipped plastic bag and easily unfolded.

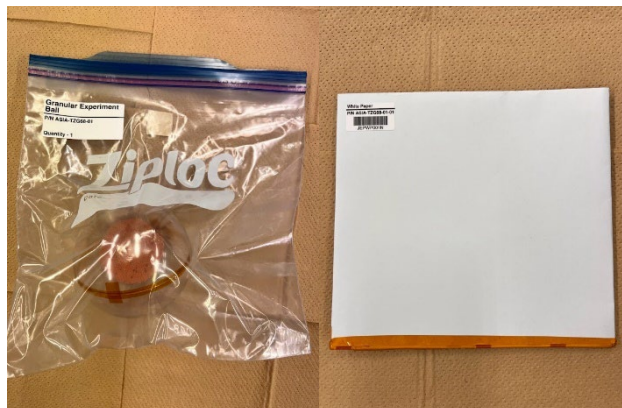


Photo left: Clear ball

Photo right: Paper background

Singapore | Double Pendulum in space

The double pendulum is the Singapore proposer's self-developed work. It is designed to reduce the frictional force of the joints minimally. In addition, four spots where astronauts apply force are marked.

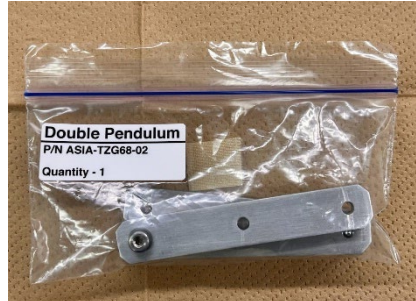


Photo: Double pendulum

Taiwan | The Water Vortex in Zero Gravity Condition

Blue-colored distilled water is filled into a commercially available bottle for easy observation of water dynamics. The body and lid are secured with Heat-resistant tape to prevent water leakage caused by a loosened top.



Photo: Bottle with colored water

Thailand | Water sphere disturbance in zero gravity

JAXA prepared two 2 cm diameter wooden spheres and one steel sphere to match the size of the water ball to be created on the ISS. Both are commercially available. One of the wooden spheres has a special surface treatment to resist water and is marked with several black dots to identify the difference.



Photo: Experimental item package containing two wooden balls and an iron ball

Thailand | Study of the height of water which is risen up in microgravity

In addition to the three types of plastic tubes provided by the proposer, JAXA has prepared another three types of plastic tubes and colored water to be absorbed into the plastic tubes. The colored water is the same as that used in the Taiwan experiment to observe water vortexes in a microgravity environment and is darker for better visibility.

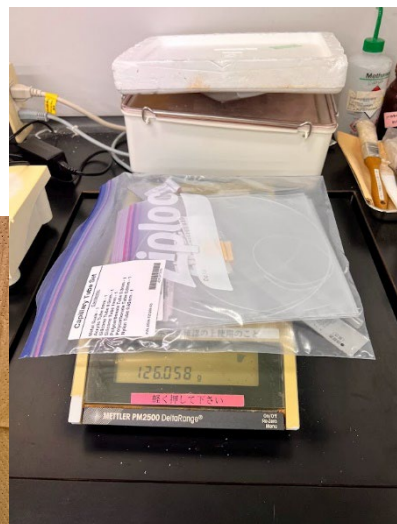


Photo left: Container with colored water Photo right: Variety of tubes in package

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