



FOR IMMEDIATE RELEASE

Spherule analysis finds evidence of extrasolar composition

*Chemical composition of spherules found along IM1 meteor path
“unprecedented in the scientific literature”*

BOSTON, MA — August 29, 2023 — The Interstellar Expedition of June 2023 — led by the expedition’s Chief Scientist, Harvard University Astrophysicist Avi Loeb and coordinated by Expedition Leader Rob McCallum of EYOS Expeditions — retrieved hundreds of metallic spheres thought to be unmatched to any existing alloys in our solar system from the seafloor in the Pacific Ocean near Papua New Guinea. Early analysis shows that some spherules from the meteor path contain extremely high abundances of Beryllium, Lanthanum and Uranium, labeled as a never-seen-before “BeLaU” composition. These spherules also exhibit iron isotope ratios unlike those found on Earth, the Moon and Mars, altogether implying an interstellar origin. The loss of volatile elements is consistent with IM1’s airburst in the Earth’s atmosphere.

The expedition retrieved spherules with a yield per background mass that increased the count of spherules near IM1’s path significantly. Using a heatmap developed from the spherule detection statistics by postdoc Laura Domine, the team was able to identify the regions with a high concentration of the retrieved spherules. The Harvard laboratory team, led by Stein Jacobsen, found “BeLaU”-type spherules of extrasolar composition only in these high-yield regions. “This abundance pattern is unprecedented in the scientific literature and could have originated from differentiation in a magma ocean on an exo-planet with an iron core,” said Stein Jacobsen.

Electron microscope images of some of the collected spherules display lopsided massive composites, indicating mergers of small spherules within the fireball volume. “The “BeLaU” composition is tantalizingly different by factors of hundreds from solar system materials, with beryllium production through spallation of heavier nuclei by cosmic-rays flagging interstellar travel,” said Avi Loeb.

Avi Loeb is the leading author on the expedition team's paper ([linked here](#)), submitted for publication in a peer-reviewed scientific journal. The spherules will continue to be analyzed by four laboratories around the world, at Harvard University, UC Berkeley, the Bruker Corporation,

and the University of Technology in Papua New Guinea (Unitech, PNG), using the most advanced instruments of their kind. “Our Vice Chancellor already signed a Memorandum of Understanding on our ongoing partnership with Harvard University,” said Jim Lem, head of the Department of Mining Engineering at Unitech, PNG. “I very much look forward to being part of the team in analyzing the spherules that are believed to have come from outside our solar system and are so rich in scientific information.”

Charles Hoskinson, who funded the expedition, likewise expressed his support for the findings: “This is a historic discovery, marking the first time that humans hold materials from a large interstellar object, and I am extremely pleased with these results from this rigorous scientific analysis.”

According to Expedition Coordinator Rob McCallum: “These results have been well received by the entire expedition team; those onboard and those working onshore. The findings demonstrate the success of the first exploratory expedition and pave the way for a second expedition to seek more data. We love to enable our clients’ projects anywhere on Earth, but this one is out of this world”.

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About Professor Avi Loeb

Avi Loeb is the head of the Galileo Project, founding director of Harvard University's Black Hole Initiative, director of the Institute for Theory and Computation at the Harvard-Smithsonian Center for Astrophysics, and the former chair of the astronomy department at Harvard University (2011-2020). He chairs the advisory board for the Breakthrough Starshot project, is a former member of the President's Council of Advisors on Science and Technology, and previously served as chair of the Board on Physics and Astronomy of the National Academies. He is the bestselling author of [*Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*](#) and co-author of the textbook [*Life in the Cosmos*](#), both published in 2021. His latest book [*Interstellar*](#) was published in August 2023.

About the Galileo Project

[The Galileo Project](#) for the Systematic Scientific Search for Evidence of Extraterrestrial Technological Artifacts is a Harvard-hosted, cross-institutional research project launched in June of 2021 by co-founders Avi Loeb and Frank Laukien. Led by Professor Avi Loeb at the *Center for Astrophysics | Harvard & Smithsonian*, the Galileo Project searches for objects near Earth that could have originated from extraterrestrial technological civilizations. The project has three branches: the study of interstellar objects (ISOs) near Earth, the search for unidentified aerial phenomena (UAPs) and the study of interstellar meteors (IMs).

About EYOS Expeditions LTD

EYOS Expeditions has been designing private expeditions since 2008, and the company's co-founders have spent decades designing groundbreaking itineraries. EYOS Expeditions holds several 'world's firsts,' routinely taking clients to destinations rarely or never before visited by private yachts. EYOS partner Rob McCallum has spent an entire career working in the undersea world. As a Partner at Deep Ocean Expeditions, he ran commercial expeditions to the RMS Titanic and the battleship Bismarck, and provided key logistical support to James Cameron's 'Deep Challenge' record-breaking dive to 35,000 feet in 2012. Previously he oversaw the construction of a super-yacht specifically designed around her three 1,000-meter rated submersibles.