DATA-DRIVEN WORD CLOUD

Biology and Biotechnology | Earth and Space Science | Human Research | Physical Science | Technology Development and Demonstration

Figure 33. Word cloud of investigations with the most scientific impact based on citation counts. Larger labels represent more citations. Label colors represent station research disciplines.

List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

Biology and Biotechnology

Advanced Plant EXperiment-07 (APEX-07) — Barcenilla BB, Meyers AD, Castillo-Gonzalez C, Young P, Min J, et al. Arabidopsis telomerase takes off by uncoupling enzyme activity from telomere length maintenance in space. *Nature Communications*. 2023 November 29; 14(1): 7854. DOI: 10.1038/s41467-023-41510-4.

Assessment of myostatin inhibition to prevent skeletal muscle atrophy and weakness in mice exposed to long-duration spaceflight, Muscle Atrophy of Muscle Sparing in Transgenic Mice, Effects of the Space Environment on the Blood and Lymphatic Vessels of the Head and Neck, the Knee and Hip Joints, and the Eyes, Rodent Research-6, Rodent Research Hardware and Operations Validation (Rodent Research-3-Eli Lilly, Rodent Research-1 (CASIS), Rodent Research-9 (RR-9), RR-6, Rodent Research-1) — Ilangovan H, Kothiyal P, Hoadley KA, Elgart R, Eley GD, et al. Harmonizing heterogeneous transcriptomics datasets for machine learning-based analysis to identify spaceflown murine liver-specific changes. *npj Microgravity*. 2024 June 11; 10(1): 1-11. DOI: 10.1038/s41526-024-00379-3.

Autonomous Biological System (ABS) — MacCallum T, Anderson G, Poynter J, Ishikawa Y, Kobayashi K, et al. The ABS (Autonomous Biological System): Spaceflight results from a bioregenerative closed life support system. *SAE Technical Paper*. 2000 July 10; 2000-01-2340: 14. DOI: 10.4271/2000-01-2340. *

Biological Research in Canisters-23 (BRIC-23) — Hauserman MR, Ferraro ME, Carroll R, Rice K. Altered quorum sensing and physiology of Staphylococcus aureus during spaceflight detected by multi-omics data analysis. *npj Microgravity*. 2024 January 8; 10(1): 1-12. DOI: 10.1038/s41526-023-00343-7.

Biomolecule Extraction and Sequencing Technology (BEST) — Castro CL, Schwengers O, Stahl-Rommel SE, Nguyen HN, Dunbar B, et al. Bacterial genome sequences of uncharacterized Chitinophaga species isolated from the International Space Station. *Microbiology Resource Announcements*. 2024 April 23; 13(6): e0007524. DOI: 10.1128/mra.00075-24.

BRIC-LED Tech Demo (BRIC-LED-001) — Olanrewaju GO, Haveman NJ, Naldrett MJ, Paul AL, Ferl RJ, et al. Integrative transcriptomics and proteomics profiling of Arabidopsis thaliana elucidates novel mechanisms underlying spaceflight adaptation. *Frontiers in Plant Science*. 2023 November 27; 14: 1260429. DOI: 10.3389/fpls.2023.1260429.

Cellular Mechanotransduction by Osteoblasts in Microgravity (Cellular Mechanotransduction by Osteoblasts) — Wubshet N, Cai G, Chen SJ, Sullivan M, Reeves M, et al. Cellular mechanotransduction of human osteoblasts in microgravity. *npj Microgravity*. 2024 March 21; 10(1): 35. DOI: 10.1038/s41526-024-00386-4.

Characterization of Biofilm Formation, Growth, and Gene Expression on Different Materials and Environmental Conditions in Microgravity (Space Biofilms) — Flores P, Luo J, Mueller DW, Muecklich F, Zea L. Space biofilms - An overview of the morphology of Pseudomonas aeruginosa biofilms grown on silicone and cellulose membranes on board the International Space Station. *Biofilm*. 2024 June; 7: 100182. DOI: 10.1016/j.bioflm.2024.100182.

Characterization of Biofilm Formation, Growth, and Gene Expression on Different Materials and Environmental Conditions in Microgravity (Space Biofilms) — Herrera-Jordan K, Pennington P, Zea L. Reduced Pseudomonas aeruginosa cell size observed on planktonic cultures grown in the International Space Station. *Microorganisms*. 2024 February 16; 12(2): 393. DOI: 10.3390/microorganisms12020393.

CYTOSKELETON — Garbacki N, Willems J, Neutelings T, Lambert C, Deroanne C, et al. Microgravity triggers ferroptosis and accelerates senescence in the MG-63 cell model of osteoblastic cells. *npj Microgravity*. 2023 December 16; 9(1): 1-16. DOI: 10.1038/s41526-023-00339-3.

Determining Muscle Strength in Space-flown Caenorhabditis elegans (Micro-16) — Soni P, Edwards H, Anupom T, Rahman M, Lesanpezeshki L, et al. Spaceflight induces strength decline in Caenorhabditis elegans. *Cells*. 2023 October 17; 12(20): 2470. DOI: 10.3390/cells12202470.

List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

Effects of Microgravity on the Structure and Function of Proximal and Distal Tubule MPS (Kidney Cells, Kidney Cells-02) — Jones-Isaac KA, Lidberg KA, Yeung CK, Yang J, Bain J, et al. Development of a kidney microphysiological system hardware platform for microgravity studies. *npj Microgravity*. 2024 May 11; 10(1): 1-9. DOI: 10.1038/s41526-024-00398-0.

Effects of Microgravity on the Structure and Function of Proximal and Distal Tubule MPS (Kidney Cells) — Lidberg KA, Jones-Isaac KA, Yang J, Bain J, Wang L, et al. Modeling cellular responses to serum and vitamin D in microgravity using a human kidney microphysiological system. *npj Microgravity*. 2024 July 9; 10(1): 75. DOI: 10.1038/s41526-024-00415-2.

Effects of Spaceflight on endothelial function: molecular and cellular characterization of interactions between genome transcription, DNA damage and induction of cell senescence (Endothelial Cells) — Balsamo M, Barravecchia I, Mariotti S, Merenda A, De Cesari C, et al. Molecular and cellular characterization of space flight effects on microvascular endothelial cell function – Preparatory Work for the SFEF Project. *Microgravity Science and Technology*. 2014 November 16; 26: 351-363. DOI: 10.1007/s12217-014-9399-4. *

Epigenetic change in Arabidopsis thaliana in response to spaceflight - differential cytosine DNA methylation of plants on the ISS (APEX-04) — Zhou M, Riva A, Gauthier ML, Kladde MP, Ferl RJ, et al. Single-molecule long-read methylation profiling reveals regional DNA methylation regulated by Elongator complex subunit 2 in Arabidopsis roots experiencing spaceflight. *Biology Direct*. 2024 April 30; 19(1): 33. DOI: 10.1186/s13062-024-00476-z.

European Modular Cultivation System (EMCS) — Brinckmann E. ESA hardware for plant research on the International Space Station. *Advances in Space Research*. 2005 January; 36(7): 1162-1166. DOI: 10.1016/j.asr.2005.02.019. *

Experiment Cube #15 Mission 2 — Ecker Cohen O, Neuman S, Natan Y, Levy A, Blum YD, et al. Amorphous calcium carbonate enhances osteogenic differentiation and myotube formation of human bone marrow derived mesenchymal stem cells and primary skeletal muscle cells under microgravity conditions. *Life Sciences in Space Research*. 2024 May; 41: 146-157. DOI: 10.1016/j.lssr.2024.02.007.

GeneLAB — Zhang Y, Du X, Zhao L, Sun Y. Construction of dose prediction model and identification of sensitive genes for space radiation based on single-sample networks under spaceflight conditions. *International Journal of Radiation Biology*. 2024 March 12; 1-14. DOI: 10.1080/09553002.2024.2327393.

GeneLAB, Assessment of myostatin inhibition to prevent skeletal muscle atrophy and weakness in mice exposed to long-duration spaceflight (Rodent Research-3-Eli Lilly) — Masarapu Y, Cekanaviciute E, Andrusivova Z, Westholm JO, Bjorklund A, et al. Spatially resolved multiomics on the neuronal effects induced by spaceflight in mice. *Nature Communications*. 2024 June 11; 15(1): 4778. DOI: 10.1038/s41467-024-48916-8.

GeneLAB, Muscle Atrophy of Muscle Sparing in Transgenic Mice, Systemic Therapy of NELL-1 for Osteoporosis, Multi-Omics Analysis of Human Microbial-Metabolic Cross-talk in the Space Ecosystem, Effects of Spaceflight on Gastrointestinal Microbiota in Mice: Mechanisms and Impact on Multi-System Physiology (Rodent Research-1 (CASIS), Rodent Research-5 (RR-5), Multi-Omics-Mouse (MHU-2), Rodent Research-7 (RR-7)) — Mathyk BA, Tabetah M, Karim R, Zaksas V, Kim J, et al. Spaceflight induces changes in gene expression profiles linked to insulin and estrogen. *Communications Biology*. 2024 June 11; 7(1): 692. DOI: 10.1038/s42003-023-05213-2.

List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

GeneLAB, RNA Interference and Protein Phosphorylation in Space Environment Using the Nematode Caenorhabditis elegans (CERISE)— He X, Zhao L, Huang B, Zhang G, Lu Y, et al. Integrated analysis of miRNAome and transcriptome reveals that microgravity induces the alterations of critical functional gene modules via the regulation of miRNAs in short-term space-flown C. elegans. *Life Sciences in Space Research*. 2024 August; 42: 117-132. DOI: 10.1016/j.lssr.2024.07.001.

GeneLAB, Rodent Research-6, The Role of CDKN1a/p21 Pathway in Microgravity-Induced Bone Tissue Regenerative Arrest - A Spaceflight Study of Transgenic CDKN1a/p21-Null Mice in Microgravity, Genome and Epigenome Analysis of Circulating Nucleic Acid-based Liquid Biopsy (RR-6, RR-10, Cell-Free Epigenome) — Akinsuyi OS, Xhumari J, Ojeda A, Roesch LF. Gut permeability among Astronauts during space missions. *Life Sciences in Space Research*. 2024 May; 41: 171-180. DOI: 10.1016/j.lssr.2024.03.003.

Generation of Cardiomyocytes from Human Induced Pluripotent Stem Cell-derived Cardiac Progenitors Expanded in Microgravity (MVP Cell-03) — Hwang H, Rampoldi A, Forghani P, Li D, Fite J, et al. Space microgravity increases expression of genes associated with proliferation and differentiation in human cardiac spheres. *npj Microgravity*. 2023 December 9; 9(1): 88. DOI: 10.1038/s41526-023-00336-6.

Human iPSC-based 3D Microphysiological System for Modeling Cardiac Dysfunction in Microgravity (Engineered Heart Tissues) — Mair DB, Tsui JH, Higashi T, Koenig PM, Dong Z, et al. Spaceflight-induced contractile and mitochondrial dysfunction in an automated heart-on-a-chip platform. *Proceedings of the National Academy of Sciences of the United States of America*. 2024 October; 121(40): e2404644121. DOI: 10.1073/pnas.2404644121.

International Space Station Internal Environments (ISS Internal Environments) — Laranja SR, Fejer BG, Ridenti MA, Amorim J, Swenson CM. Ion density climatology based on FPMU measurements on board the International Space Station. *Journal of Geophysical Research: Space Physics*. 2023 December 20; 128(12): e2023JA031980. DOI: 10.1029/2023JA031980.

International Space Station-Microbial Observatory of Pathogenic Viruses, Bacteria, and Fungi (ISS-MOP) Project (Microbial Tracking-2) — Simpson AC, Sengupta P, Zhang F, Hameed A, Parker CW, et al. Phylogenomics, phenotypic, and functional traits of five novel (Earth-derived) bacterial species isolated from the International Space Station and their prevalence in metagenomes. *Scientific Reports*. 2023 November 6; 13(1): 19207. DOI: 10.1038/s41598-023-44172-w.

International Space Station Summary of Research Performed (ISS Summary of Research) — Chua CY, Jimenez M, Mozneb M, Traverso G, Lugo R, et al. Advanced material technologies for space and terrestrial medicine. *Nature Reviews Materials*. 2024 June 3; 1-14. DOI: 10.1038/s41578-024-00691-0.

Investigation of the Osteoclastic and Osteoblastic Responses to Microgravity Using Goldfish Scales (Fish Scales) — Hattori A, Suzuki N. Receptor-mediated and receptor-independent actions of melatonin in vertebrates. *Zoological Science*. 2024 January 12; 41(1): 105-116. DOI: 10.2108/zs230057.

Japan Aerospace Exploration Agency Protein Crystallization Growth (JAXA PCG) — Dubova KM, Dubovskii PV, Utkin YN, Samygina VR. Effect of microgravity on the crystallization of cardiotoxin from the venom of spectacled cobra Naja naja. *Crystallography Reports*. 2023 December; 68(6): 900-904. DOI: 10.1134/S1063774523601144.

JAXA Mouse Habitat Unit Technical Verification, JAXA Mouse Habitat Unit-5 (Mouse Habitat Unit-4 (Mouse Habitat Verification), Mouse Habitat Unit - 5) — Ouchi T, Kono K, Satou R, Kurashima R, Kimura M, et al. Upregulation of Amy1 in the salivary glands of mice exposed to a lunar gravity environment using the multiple artificial gravity research system. *Frontiers in Physiology*. 2024 June 25; 15: 14pp. DOI: 10.3389/fphys.2024.1417719.

List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

KAR 01 - KAR 14 — Lee J, Kim Y, Yi SY, Kim KS, Kang SW, et al. An overview of Korean astronaut's space experiments. *Acta Astronautica*. 2010 October; 67(7-8): 934-941. DOI: 10.1016/j.actaastro.2010.06.006. *

Mammalian Early Embryogenesis Under Microgravity State in Space (Space Embryo) — Wakayama S, Shimazu T, Yamamori T, Osada I, Umehara M, et al. Effect of microgravity on mammalian embryo development evaluated at the International Space Station. *iScience*. 2023 November 17; 26(11): 108177. DOI: 10.1016/j.isci.2023.108177.

Mammalian Early Embryogenesis Under Microgravity State in Space (Space Embryo) — Wakayama T, Wakayama S, Suzuki T, Yamazaki C. Frozen egg cultivation apparatus, and method for cultivating frozen eggs. *United States Patent and Trademark Office*. US20230287339A1. 2023 September 14. *

Mechanisms of Gravity Resistance in Plants From Signal Transformation and Transduction to Response (Resist Tubule) — Hoson T, Soga K, Wakabayashi K, Hedrich R, Suzuki M, et al. Suppression of bolting in the Arabidopsis hmg1 mutant under microgravity conditions in space – Possible involvement of lipid rafts. *Biological Sciences in Space*. 2024; 38: 18-26. DOI: 10.2187/bss.38.18.

Microbial Tracking Payload Series (Microbial Observatory-1) — Irby I, Broddrick J. Microbial adaptation to spaceflight is correlated with bacteriophage-encoded functions. *Nature Communications*. 2024 May 15; 15(1): 3474. DOI: 10.1038/s41467-023-42104-w.

Microbial Tracking Payload Series (Microbial Observatory-1) — Miliotis G, McDonagh F, Singh NK, O'Connor L, Tuohy A, et al. Genomic analysis reveals the presence of emerging pathogenic Klebsiella lineages aboard the International Space Station. *Microbiology Spectrum*. 2023 December 12; 11(6): e0189723. DOI: 10.1128/spectrum.01897-23.

Microbial Tracking Payload Series (Microbial Observatory-1) — Sengupta P, Muthamilselvi Sivabalan SK, Singh NK, Raman K, Venkateswaran KJ. Genomic, functional, and metabolic enhancements in multidrug-resistant Enterobacter bugandensis facilitating its persistence and succession in the International Space Station. *Microbiome*. 2024 March 23; 12(1): 62. DOI: 10.1186/s40168-024-01777-1.

Microbial Tracking Payload Series (Microbial Observatory-1) — Thorn V, Xu J. Mitogenome Variations in a Global Population of Aspergillus fumigatus. *Journal of Fungi*. 2023 October; 9(10): 995. DOI: 10.3390/jof9100995.

Microgravity Expanded Stem Cells — Ghani F, Zubair AC. Discoveries from human stem cell research in space that are relevant to advancing cellular therapies on Earth. *npj Microgravity*. 2024 August 21; 10(1): 1-9. DOI: 10.1038/s41526-024-00425-0.

NanoRacks-Heart Effect Analysis Research Team conducting Fly Investigations and Experiments in Spaceflight (NanoRacks-Heart Flies, GeneLAB) — Samson F, Bhat A, Sayyah Z, Reinsch SS, Blaber EA. Diacylglycerol kinase is downregulated in the Drosophila seizure mutant during spaceflight. *Gravitational and Space Research*. 2024 January 01; 12(1): 41-45.

Pick-and-eat Salad-crop Productivity, Nutritional Value, and Acceptability to Supplement the ISS Food System (Veg-04A, Veg-04B) — Bunchek JM, Hummerick ME, Spencer LE, Romeyn MW, Young MH, et al. Pick-and-eat space crop production flight testing on the International Space Station. *Journal of Plant Interactions*. 2024 January 18; 19(1): 2292220. DOI: 10.1080/17429145.2023.2292220.

Rodent Research-6 (RR-6) — Gonzalez E, Lee MD, Tierney BT, Lipieta N, Flores P, et al. Spaceflight alters host-gut microbiota interactions. *npj Biofilms and Microbiomes*. 2024 August 29; 10(1): 1-19. DOI: 10.1038/s41522-024-00545-1.

List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

Rodent Research Hardware and Operations Validation, Commercial Biomedical Testing Module-3: Assessment of sclerostin antibody as a novel bone forming agent for prevention of spaceflight-induced skeletal fragility in mice, Commercial Biomedical Testing Module-3: STS-135 space flight's affects on vascular atrophy in the hind limbs of mice (Rodent Research-1, CBTM-3-Sclerostin Antibody, CBTM-3-Vascular Atrophy, GeneLAB, and others) — Zhang Y, Zhao L, Sun Y. Using single-sample networks to identify the contrasting patterns of gene interactions and reveal the radiation dose-dependent effects in multiple tissues of spaceflight mice. *npj Microgravity*. 2024 April 4; 10(1): 45. DOI: 10.1038/s41526-024-00383-7.

Rodent Research Hardware and Operations Validation, Effects of the Space Environment on the Blood and Lymphatic Vessels of the Head and Neck, the Knee and Hip Joints, and the Eyes (Rodent Research-1, Rodent Research-9 (RR-9)) — Li K, Desai R, Scott RT, Steele JR, Machado M, et al. Explainable machine learning identifies multi-omics signatures of muscle response to spaceflight in mice. *npj Microgravity*. 2023 December 12; 9(1): 90. DOI: 10.1038/s41526-023-00337-5.

Spaceflight Effects on Vascular Endothelial and Smooth Muscle Cell Processes (STaARS BioScience-3) — Scotti MM, Wilson BK, Bubenik JL, Yu F, Swanson MS, et al. Spaceflight effects on human vascular smooth muscle cell phenotype and function. *npj Microgravity*. 2024 March 28; 10(1): 41. DOI: 10.1038/s41526-024-00380-w.

Spaceflight Environment Induces Remodeling of Vascular Network and Glia-Vascular Communication in Mouse Retina (Rodent Research-18 (RR-18)) — Braun JL, Fajardo VA. Spaceflight increases sarcoplasmic reticulum Ca2+ leak and this cannot be counteracted with BuOE treatment. *npj Microgravity*. 2024 July 19; 10(1): 1-7. DOI: 10.1038/s41526-024-00419-y.

STaARS BioScience-4 — Biancotti JC, Espinosa-Jeffrey A. Metabolomic profiling of the secretome from human neural stem cells flown into space. *Bioengineering*. 2024 January; 11(1): 11. DOI: 10.3390/bioengineering11010011.

Study on the Effect of Space Environment to Embryonic Stem Cells to Their Development (Stem Cells) — Yoshida K, Hada M, Hayashi M, Kizu A, Kitada K, et al. Transcriptome analysis by RNA sequencing of mouse embryonic stem cells stocked on International Space Station for 1584 days in frozen state after culture on the ground. *International Journal of Molecular Sciences*. 2024 January; 25(6): 3283. DOI: 10.3390/ijms25063283.

Studying the Features of the Growth and Development of Plants, and Technology for their Culturing in Spaceflight on the ISS RS (Rastenia-Pshenitsa (Plants-Wheat))— Aniskina TS, Sudarikov KA, Levinskikh MA, Gulevich AA, Baranova EN. Bread wheat in space flight: Is there a difference in kernel quality?. *Plants*. 2024 January; 13(1): 73. DOI: 10.3390/plants13010073.

Tissue Engineered Muscle as a Novel Platform to Study Sarcopenia (Cardinal Muscle) — Kim S, Ayan B, Shayan M, Rando TA, Huang NF. Skeletal muscle-on-a-chip in microgravity as a platform for regeneration modeling and drug screening. *Stem Cell Reports*. 2024 July 6; 19(8): S2213-6711(24)00190-5. DOI: 10.1016/j.stemcr.2024.06.010.

Transcriptional and Post Transcriptional Regulation of Seedling Development in Microgravity (Plant RNA Regulation, Plant Signaling) — Land ES, Sheppard J, Doherty CJ, Perera IY. Conserved plant transcriptional responses to microgravity from two consecutive spaceflight experiments. *Frontiers in Plant Science*. 2024 January 8; 14: 20pp. DOI: 10.3389/fpls.2023.1308713.

Transcriptome analysis and germ-cell development analysis of mice in the space (Mouse Habitat Unit -1 (MHU-1/ Mouse Epigenetics)) — Yoshikawa M, Ishikawa C, Li H, Kudo T, Shiba D, et al. Comparing effects of microgravity and amyotrophic lateral sclerosis in the mouse ventral lumbar spinal cord. *Molecular and Cellular Neuroscience*. 2022 July; 103745. DOI: 10.1016/j.mcn.2022.103745. *

List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

Whole Genome Fitness of Bacteria Under Microgravity (Bacterial Genome Fitness) — Sharma G, Zee PC, Zea L, Curtis PD. Whole genome-scale assessment of gene fitness of Novosphingobium aromaticavorans during spaceflight. *BMC Genomics*. 2023 December 16; 24(1): 782. DOI: 10.1186/s12864-023-09799-z.

Earth and Space Science

Alpha Magnetic Spectrometer - 02 (AMS-02) — Aguilar-Benitez M, Alpat B, Ambrosi G, Anderson H, Arruda MF, et al. Properties of cosmic deuterons measured by the Alpha Magnetic Spectrometer. *Physical Review Letters*. 2024 June 28; 132(26): 261001. DOI: 10.1103/PhysRevLett.132.261001.

Alpha Magnetic Spectrometer - 02 (AMS-02) — Aguilar-Benitez M, Ambrosi G, Anderson H, Arruda MF, Attig N, et al. Temporal structures in positron spectra and charge-sign effects in galactic cosmic rays. *Physical Review Letters*. 2023 October 13; 131(15): 151002. DOI: 10.1103/PhysRevLett.131.151002.

Alpha Magnetic Spectrometer - 02 (AMS-02) —Aguilar-Benitez M, Cavasonza LA, Alpat B, Ambrosi G, AMS-02 Collaboration, et al. Properties of cosmic-ray sulfur and determination of the composition of primary cosmic-ray carbon, neon, magnesium, and sulfur: Ten-year results from the Alpha Magnetic Spectrometer. *Physical Review Letters*. 2023 May 25; 130(21): 211002. DOI: 10.1103/PhysRevLett.130.211002. *

Alpha Magnetic Spectrometer - 02 (AMS-02) — Beischer B, von Doetinchem P, Gast H, Kirn T, Schael S. Perspectives for indirect dark matter search with AMS-2 using cosmic-ray electrons and positrons. *New Journal of Physics*. 2009 October 10; 11(10): 105021. DOI: 10.1088/1367-2630/11/10/105021. *

Alpha Magnetic Spectrometer - 02 (AMS-02) — Haino S, AMS-02 Collaboration. The performance of the AMS-02 silicon tracker evaluated during the pre-integration phase of the spectrometer. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*. 2011 February 21; 630(1): 78-81. DOI: 10.1016/j.nima.2010.06.032. *

Alpha Magnetic Spectrometer - 02 (AMS-02) — Pan X, Yuan Q. Injection spectra of different species of cosmic rays from AMS-02,ACE-CRIS and Voyager-1. *Research in Astronomy and Astrophysics*. 2023 November; 23(11): 115002. DOI: 10.1088/1674-4527/acf443.

Alpha Magnetic Spectrometer - 02 (AMS-02) — Velasco Frutos MA, Casaus J, Molero M. Determination of the anisotropy of elementary particles with the Alpha Magnetic Spectrometer on the International Space Station. *Advances in Space Research*. 2024 November; 74(9) 4346-4352. DOI: 10.1016/j.asr.2024.01.060.

Alpha Magnetic Spectrometer - 02 (AMS-02) — Zhu C, Yuan Q, Wei D. Studies on Cosmic-Ray Nuclei with Voyager, ACE, and AMS-02. I. Local interstellar spectra and solar modulation. *The Astrophysical Journal*. 2018 August 16; 863(2): 119. DOI: 10.3847/1538-4357/aacff9. *

Astrobiology Exposure and Micrometeoroid Capture Experiments (Tanpopo) — Tabata MJ, Yano H, Kawai H, Imai E, Kawaguchi Y, et al. Silica aerogel for capturing intact interplanetary dust particles for the tanpopo experiment. Origins of life and evolution of the biosphere: *The Journal of the International Society for the Study of the Origin of Life*. 2015 June; 45: 225-229. DOI: 10.1007/s11084-015-9423-8. *

Atmosphere-Space Interactions Monitor (ASIM) — Bjorge-Engeland I, Ostgaard N, Marisaldi M, Luque A, Mezentsev A, et al. High peak current lightning and the production of elves. *Journal of Geophysical Research: Atmospheres*. 2024 February 23; 129(4): e2023JD039849. DOI: 10.1029/2023JD039849.

Atmosphere-Space Interactions Monitor (ASIM) — Bjorge-Engeland I, Ostgaard N, Sarria D, Marisaldi M, Mezentsev A, et al. Evidence of a new population of weak terrestrial gamma-ray flashes observed from aircraft altitude. *Geophysical Research Letters*. 2024 September 16; 51(17): e2024GL110395. DOI: 10.1029/2024GL110395.

List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

Atmosphere-Space Interactions Monitor (ASIM) — Gomez C, Diaz F, Roman F, Neubert T, Reglero V, et al. Implementation of electromagnetic measurements with satellite data for TLEs determination and classification. *2023 International Symposium on Lightning Protection (XVII SIPDA)*, Suzhou, China; 2023 October 9-13. 1-7. DOI: 10.1109/SIPDA59763.2023.10349152.

Atmosphere-Space Interactions Monitor (ASIM) — Soler S, Gordillo-Vasquez FJ, Perez-Invernon FJ, Jockel P, Neubert T, et al. Parameterizations for global thundercloud corona discharge distributions. *Atmospheric Chemistry and Physics*. 2024 September 16; 24(18): 10225-10243. DOI: 10.5194/acp-24-10225-2024.

Atmosphere-Space Interactions Monitor (ASIM) — van der Velde OA, Navarro-Gonzalez J, Fabro F, Reglero V, Connell PH, et al. Imaging of 3 bright terrestrial gamma-ray flashes by the atmosphere-space interactions monitor and their parent thunderstorms. *Scientific Reports*. 2024 March 23; 14(1): 6946. DOI: 10.1038/s41598-024-57229-1.

Atmosphere-Space Interactions Monitor, STP-H5-Lightning Imaging Sensor (ASIM, STP-H5 LIS) — Koehn C, Heumesser M, Chanrion O, Reglero V, Ostgaard N, et al. Employing optical lightning data to identify lightning flashes associated to terrestrial gamma-ray flashes. *Bulletin of Atmospheric Science and Technology*. 2024 April; 5(1): 2. DOI: 10.1007/s42865-024-00065-y.

CALorimetric Electron Telescope (CALET) — Adriani O, Akaike Y, Asano K, Asaoka Y, Bagliesi MG, et al. The CALorimetric Electron Telescope (CALET) for high-energy astroparticle physics on the International Space Station. *Journal of Physics: Conference Series*. 2015 July; 632(1): 012023. DOI: 10.1088/1742-6596/632/1/012023. *

CALorimetric Electron Telescope (CALET) — Adriani O, Akaike Y, Asano K, Asaoka Y, Berti E, et al. Direct measurements of cosmic - ray iron and nickel with CALET on the International Space Station. *Advances in Space Research*. 2024 March 27; epub: 11pp. DOI: 10.1016/j.asr.2024.03.052.

CALorimetric Electron Telescope (CALET) — Akaike Y, Adriani O, Asano K, Asaoka Y, Berti E, et al. Direct measurements of cosmic rays with the calorimetric electron telescope on the international space station. *SciPost Physics Proceedings*. 2023 September 29; (13): 040. DOI: 10.21468/SciPostPhysProc.13.040. *

CALorimetric Electron Telescope (CALET) — Adriani O, Akaike Y, Asano K, Asaoka Y, Berti E, et al. Direct measurement of the spectral structure of cosmic-ray electrons + positrons in the TeV Region with CALET on the International Space Station. *Physical Review Letters*. 2023 November 9; 131(19): 191001. DOI: 10.1103/PhysRevLett.131.191001.

CALorimetric Electron Telescope (CALET) — Adriani O, Akaike Y, Asano K, Asaoka Y, Berti E, et al. Iron and Nickel fluxes measured by CALET on the International Space Station. *Proceedings of 38th International Cosmic Ray Conference — PoS (ICRC2023)*, Nagoya, Japan; 2023 August 8. 061. DOI: 10.22323/1.444.0061. *

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

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List of Archived Space Station Publications

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

(Listed by category and alphabetically)

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List of Archived Space Station Publications

Oct. 1, 2023 – Sept. 30, 2024

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List of Archived Space Station Publications

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List of Archived Space Station Publications

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