

# The AMS-02 antihelium discovery supports the gravitationally neutral–flat (matter plus dark matter) and (antimatter plus dark antimatter) universe concept

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The cosmic antihelium discovery (assumably created in antistars) [1] supports the gravitationally neutral (flat) universe concept via the predicted matter-antimatter (OM-AM)-antigravity; dark matter (DM) and dark antimatter (DAM) antigravity [2] and zero cosmological constant [3]. The (OM+DM)-(AM+DAM)-equal mixture of repulsive galactic clusters–anticlusters has few Mps distances [4], so the nearest anticlusters could be natural sources of the antihelium. The charge-parity-time (CPT)-symmetry tests in mixtures of antiprotons and negative H<sup>-</sup> ions showed charge/mass ratios are equal for matter and antimatter [5]. This was mistakenly interpreted antimatter must be attractive to matter [5], but these ratios depend only of the inertial mass, positive and equal for matter and antimatter. Decisive tests of the predicted antigravity as the OM-AM gravity mass symmetry [2] will be direct antihydrogen gravity tests, planned at CERN [6].

[1] Aguilar M *et al* 2019 *Phys. Rev. Lett.* **123** 181102

[2] Gribov I A 2019 *J. Phys.: Conf. Ser.* **1147** 012083

[3] Gribov I A and Trigger S A 2018 *J. Phys.: Conf. Ser.* **946** 012020

[4] Gribov I A and Trigger S A 2016 *J. Phys.: Conf. Ser.* **774** 012045

[5] Borchert M J *et al* 2022 *Nature* **601** 53–57

[6] Bertsche W A 2018 *Trans. R. Soc. A* **376** 20170265