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Solution to the Cosmological Constant Problem by Gauge Theory of Gravity WU Ning,<sup>1</sup> Germano Resconi,<sup>2</sup> ZHENG Zhi-Peng,<sup>1</sup> XU Zhan,<sup>3</sup> ZHANG Da-Hua,<sup>1</sup> and RUAN Tu-Nan<sup>4</sup> <sup>1</sup> Institute of High Energy Physics, P.O. Box 918-1, Beijing 100039, China <sup>2</sup> Mathematical and Physical Department, Catholic University, Via Trieste 17, Brescia, Italy <sup>3</sup> Institute for Advanced Study, Tsinghua University, Beijing 100084, China <sup>4</sup> Department of Modern Physics, University of Science and Technology of China, Hefei 230026, China (Received: 2002-10-9; Revised: ) Abstract: Based on geometry picture of gravitational gauge theory, the cosmological constant is determined theoretically. The cosmological constant is related to the average energy density

is determined theoretically. The cosmological constant is related to the average energy density of gravitational gauge field. Because the energy density of gravitational gauge field is negative, the cosmological constant is positive, which generates repulsive force on stars to make the expansion rate of the Universe accelerated. A rough estimation of it gives out its magnitude of the order of about  $10^{-52}$  m<sup>-2</sup>, which is well consistent with experimental results.

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