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Quantum communications at ESA: Towards a space experiment on the ISS

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Abstract

The European Space Agency (ESA) has supported since 2002 “in the frame of its General Studies Programme” several studies in the field of quantum communications for space systems. As a result of these studies, a European research consortium led by Prof. Zeilinger (Vienna University) submitted the mission proposal Space-QUEST (‘‘Quantum Entanglement for Space Experiment’’) to the *European Life and Physical Sciences in Space Programme* of ESA, aiming at a quantum communications space-to-ground experiment from the International Space Station (ISS). This paper will present the achievements of the ESA studies on quantum communications and discuss the programmatic roadmap and the proposed technology development activities for the implementation of the proposed Space-QUEST experiment on-board the ISS.





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