

IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Extra-Terrestrial and Interplanetary Communications, and Regulations (5)

Author: Ms. Samiksha Raviraja
Airbus Defence and Space, United Kingdom

QUANTUM SIGNALS FOR DEEP-SPACE COMMUNICATION AND ALIEN LIFE DETECTION

Abstract

Radio waves have been fundamentally used for deep-space communication. An amazing form of being able to communicate at long distances, however it does come with limitations like speed, signal strength, signal degradation, interference, delays and more. With humanity wanting to venture out even further, quantum entanglement/quantum telecommunication could offer revolutionary possibilities for deep-space communications and allow humans to understand and explore the vast universe, without the constraints of traditional technology.

This theoretical paper would explore the feasibility, benefits, technological and physical challenges and opportunities of using quantum signals for deep space communications. Particularly for the search of intelligent life and exoplanets out there. The applications and possibilities shall be explored too. Quantum entanglement could potentially allow us to receive and interpret signals that are outside the electromagnetic spectrum.

Further, the paper aims to dive into the potential for quantum sensors to detect anomalies in cosmic radiation, gravitational waves, or other unexplained phenomena that might indicate signs of intelligent life or even offer an opportunity to learn about the origins of this universe, mysteries about blackholes, wormholes and even dark matter. If successful, quantum-based communication could revolutionize not only how we connect with distant space missions but also how we search and learn in the universe.

The paper shall also dive into other possible means of communications possible intelligent alien life may have invented or in ownership of.