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**Induced electron radiation effect on the performance of inter-satellite optical wireless communication**

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**Abstract**
This paper provides the details of a study on the effects of electron radiation on the Performance of Inters-satellite Optical Wireless Communication (IsOWC). Academia and industry focus on solutions that can improve performance and reduce the cost of IsWOC systems. Spacecraft, space stations, satellites, and astronauts are exposed to an increased level of radiation when in space, so it is essential to evaluate the risks and performance effects associated with extended radiation exposures in missions and space travel in general. This investigation focuses on LEO, especially in the near-equatorial radiation environment. Radiation experiments supported with simulations have made it possible to obtain and evaluate the electron radiation impact on optoelectronics at the device level and system level performances. The electron radiation has induced a system degradation of 70%. This result demonstrates the importance of such an investigation to predict and take necessary and suitable reliable quality service for future space missions. © 2021 Youssouf et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

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article, cosmonaut, electron radiation, human, radiation exposure, risk assessment, space flight, wireless communication

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