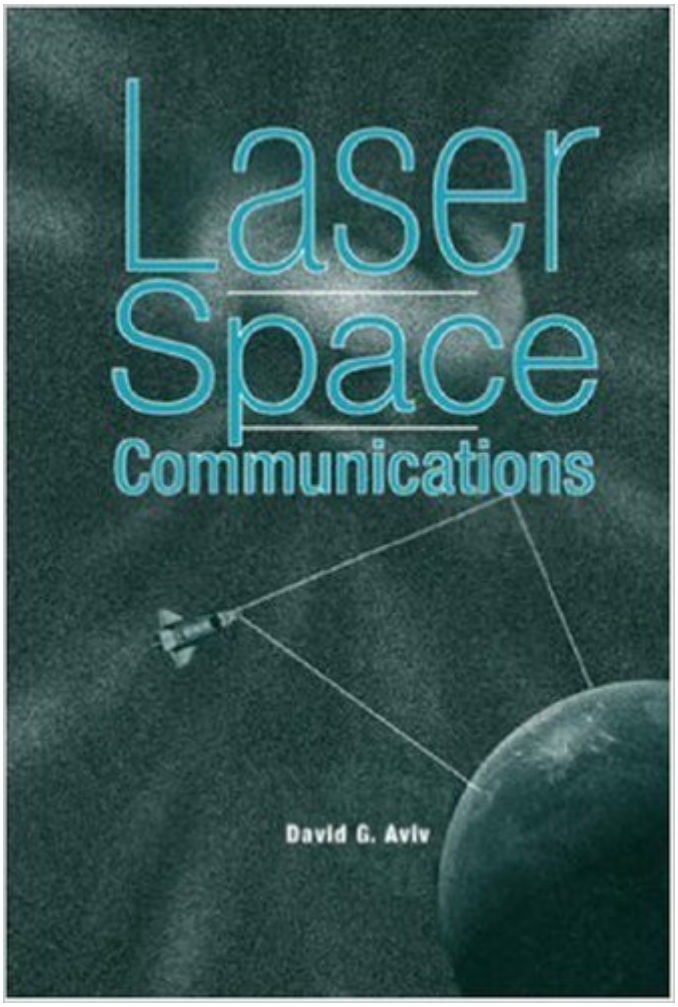
# Laser Space Communications (Artech House Space Technology And Applications)



## Synopsis

Laser space communications is a hot topic among electrical engineers working for the government and in the defense industry, and this groundbreaking resource is the first to offer professionals a thorough, practical treatment of the subject. The book focuses on the feasibility of laser space communications between satellites, satellites and airborne platforms, and satellites and ground based stations to achieve worldwide connectivity. It covers all the critical topics that engineers working in the field need to understand such as weather avoidance, 5th Generation Internet (5-GENIN), and noise photons. This hands-on volume presents simplified, yet highly accurate, engineering expressions of complex mathematics that save practitioners valuable time and effort when working on their challenging projects.

## Book Information

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## Customer Reviews

As a practicing system engineer and analyst for a dozen years at both TRW and the RAND Corporation (ASW, IFF systems, SDI, Space Telescope) I have followed the development of laser technology for a variety of civil and military applications. Lab experiments in the 1970s and `80s faced seemingly insurmountable obstacles to long distance extrapolation. At the time, they were the stuff of science fiction.Mr. Aviv’s laser communications ideas in the late 1990s and early 2000s were unappreciated because they were far ahead of their time. In this excellent book he captures those groundbreaking ideas using clear illustrations, detailed equations, and references to existing,

proven platforms. With the advent of Low Earth Orbit satellite systems, robust fiberoptic cables, the advances in wireless digital communication, Internet, and nanotechnology, theoretical satcom architectures suddenly entered the realm of feasibility at the turn of the 21st century.Experiments like the SILEX system produced encouraging results showing that space communications need no longer be restricted to RF. Rather than propose an either/or solution (laser versus RF), Mr. Aviv has combined the best of both in a compelling set of alternative system architectures that are flexible, mobile, built on a fiber backbone, and incorporate Internet features. Nanosatellites are elements of some of the creative architectures.The same data compression approach is used for RF as for combined laser/microwave downlinks in poor weather. One of the key drivers to any system architecture is weather-related signal losses, which affect Bit Error Rate (BER) and influence the design of sophisticated adaptive optical subsystems. The author has accounted for these essential elements in each architecture discussed.

Radar Library) Build Your Own Working Fiberoptic Infrared and Laser Space-Age Projects Data and Computer Communications (10th Edition) (William Stallings Books on Computer and Data Communications)