



Optical Wireless Applications

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ABSTRACT

Demands by the communications industry for greater and greater bandwidth push the capability of conventional wireless technology. Optical systems and networks offer a far greater bandwidth. This means new devices and systems have to be developed. Semiconductor Light Emitting Diode (LED) is considered to be the future primary lighting source for buildings, automobiles and aircrafts. LED provides higher energy efficiency compared to incandescent and fluorescent light sources and it will play a major role in the global reduction of carbon dioxide emissions, as a consequence of the significant energy savings. Lasers are also under investigation for similar applications. These core devices have the potential to revolutionize how we use light, including not only for illumination, but as well; for communications, sensing, navigation, positioning, surveillance, and imaging. After a brief overview on Penn-State/Georgia-Tech NSF Industry-University-Cooperative-Research Center on Optical Wireless Applications (COWA), we will focus on free space optical communications (FSO) through clouds and turbulent atmosphere.