

OPTICAL ANTENNAS: An Antenna Which Operate Optical Devices at Optical Frequencies Regime

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Abstracts

In this research work we have studied about radio frequencies, antennas represent the fundamental tool allowing the connection of sub-wavelength regions of space where sources or receivers are located with far-field radiation field. While antennas are ubiquitous in today's wireless web world of communications, the idea of being able to efficiently connect sub wavelength sources to the far field is also very appealing in mid-infrared optics. The classical laws of electromagnetism, as expressed by Maxwell-Heaviside's equations, which allows the translation of concepts and designs from a frequency region of the electromagnetic spectrum to another one by properly scaling all of the involved dimensions relative to the wavelength. These ideas allow us to envision antenna technology at higher frequencies, and, thanks to recent advances in nanotechnology, large research efforts have recently been devoted to designing and fabricating nanoscale antennas that operate at optical frequencies, greatly extending the reach of the century-old antenna technology. However, while Maxwell's equations do not change as the frequency is varied, the same is not true for the electromagnetic properties of matter. The drastically different response of materials at these frequencies offers new challenges for antenna engineers and, at the nano range, it has great applications for the field of bio- molecules/Biomedical in partens. The Biochips will allow faster and better sensation in a time in critical situation. biotechnology consisting of variety of techniques including the use of living organisms & their manipulation.

Keywords: - Nanotechnology, antenna engineers, nanoelectronics, wireless communication, radio-frequency, nano-antennas.

INTRODUCTION

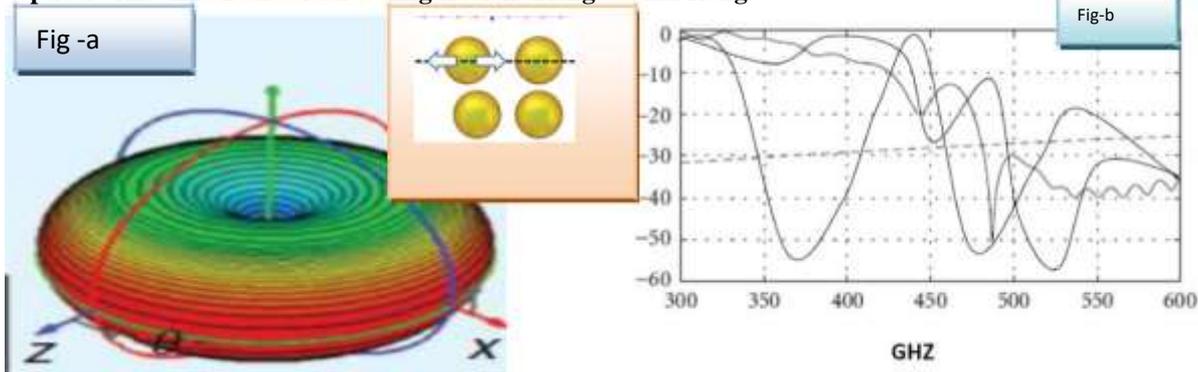
The applications in the field of communications technology can be found in association with The Nanoscale Transistors, Semiconductor Wave Interference Devices including Electronic Wave guiding and Quantum Electronic. Optical communication has become a broad and interdisciplinary research field. Nano-science is well recognized as a revolutionary step in various field of science and technology field of study for researchers in the coming years as it is, the study of fundamental principles of molecules of Nanomaterials and structures between one nanometer (one billionth of a meter) and 100 Nanometers in size[1-11]. The carbon nanotube (CNT) is a hollow tube composed of carbon atoms. Its diameter averages tens of nanometers (10-9 meters). The future of micro-and nanoelectronics has great suitability for Sustainable Development For using CNTs in transistor technology. CNT have the potential for future development in the field of electronics due to their unequal electrical properties of the transmission efficiency is studied for various parameters including length, thickness, width, and composition of the antenna as well as the wavelength of incident light[12-15]. Modeling-based automated design optimization framework is developed to optimize nano-antennas. The electromagnetic model is integrated with and genetic algorithm and their electrical performance in two major directions carbon nanotube nanoelectronics in the nanoelectronics direction Nanotechnology has been developed in many areas over the decades, one of the most important areas of this technology is nanomaterials level, which plays an important role in wireless technology. Carbon nanotube networks in digital circuits, display applications, and printed electronics[16-21]. In this part, we discuss the existing challenges and future directions of nanotube based nanoelectronics. We discuss to the performance of carbon nanotubes for digital circuits and circuits designed for radio-frequency their multiple applications for Carbon nanotube networks for wireless technology and communications System and nanotube based nanoelectronics.

2. The basics properties of Optical-antenna simulations Result

Modern wireless communication requires high speed mobile wireless communication to develop high level technology which can use different purposes of portable communication devices. Antenna anplay important role in any technical or communicational devices. We improve communicational devices like cellular phone which is playing very important role so; we need to improves its performance for communication system. Nowadays Antenna provide high level gain its bandwidth is also high .The many types of antenna uses for many purpose of communication, which is able to achieved smartly to improves its of communication system which is depend upon various parameters. The Current trends of information communication technology works on concept of architecture, which is dependent part of complex, which has proposed in this research article. Nanoantenna are small in size in conventional antenna which works or operate at the optical frequencies. In this research article we introduce optenna(optical- antenna) which works on nanoscale frequency DRA antenna has high permittivity with low reduction optical DRA allowing numerous application DRA Proportional permittivity material⁵. The Antenna field structures do not need λ bandwidth in Advance generation communication system have very high sensitivity material for digital community with high efficiency. The Antenna has not only transmitting and receiving devices it is key part. Nanoantenna has high level configurable conductor⁶. The dielectric resonator Antenna has good networking to connect one device to another device. The Specific feature of DRA or optical DRA moving around development of human life or convenient life. The broadcasting Technology only has power to change our life with help of advanced technology or current technology. Nowadays we live on cell phone or android phone. Android phone is currently revolving around china phone market, phone market because china cell phone Company has less making cost that main fact low cost mobile providing company. The optical antenna can be measured radiation patterns for far field resonance .The bandwidth of optical transmission of MIMO DRA has free space optical transmission effects on optical channel differentiability is easily understood the general problem open for Maxwell equations is free space propagation The some solution for free type scattering process of linear optics. The mathematically represent the amplitude of phase function is simplify by Maxwell's homogeneous space for wave equation

$$\left(\nabla^2 + K^2 \right) E = 0 \dots \dots \dots \text{equation (1)}$$

Optical - Antenna Bandwidth Configurations Range at nm Range



Optical antenna for Broad Cast System has certain limitations for require Performance to navigate system .The navigation system uses large variety of Radar system configurations .The advance device demands high level Antenna system for pest Performances result to evaluate basic Application Performance for wireless and cellular system. Optical antenna has unique Capability to fulfil all the requirements of operational communication system. We have used Antenna system for communicate or Transmits Radio signal to one station to another station .The both purpose can be done to use dual pattern diversity of antenna for Body Area Networking which plays an Important role in current Scenarios.

3. Conclusions

We have reviewed several aspects and applications of optical antennas. In particular focused on The Dielectric Antenna Transmit Optical Frequency at nm scale as well as also reviewed the theoretical aspect of optinna (optical-antenna) to design & control communication system for maxima level transmission efficiency. Optical radiation distribution of electromagnetic range of Antenna frequency .The antenna Fabrication methodology concentrates on uses material to fabricate antenna .The simulation of Antenna design works well with Dielectric constant to tune resonance frequency can enable to control its configuration THZ, nm scale, The Dielectric Antenna has unique attraction for communication community which enables the nanotechnology, nano- devices to controle telemedicinal treatments, IOT, with high impendence bandwidth. This study, interaction of light with plasmonic nano-antennas was investigated. An extensive study is performed to investigate the effect of the geometric and material properties of nano-antennas on the transmission efficiency the splitting resonance peaks of the hybrid nanoantenna confirm the strong interaction between the graphene plasmonics and metal plasmonics

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