|  |  |  |  |
| --- | --- | --- | --- |
| **Title:** | SWCNT based On Body patch antenna for lung tumor detection in X band | | |
| **Author(s) Name:** | Sumit Hassan Eshan, Raja Rashidul Hasan, SM Ashikul Islam, Tasnia Hasnat, Jiadul Islam, Abdullah Al Mamun Sarker | | |
| **Contact Email(s):** | hemal@aiub.edu | | |
| **Published Conference Name:** | 11th International Conference on Mathematical Modeling in Physical Sciences (IC-MSQUARE 2022) | | |
| **Type of Publication:** | Conference | | |
| **Volume:** | NA | Issue | NA |
| **Publisher:** | AIP PUBLISHER | | |
| **Publication Date:** | SEPTEMBER 2023 | | |
| **ISSN:** | NA | | |
| **DOI:** | https://doi.org/10.1063/5.0162869 | | |
| **URL:** | https://doi.org/10.1063/5.0162869 | | |
| **Other Related Info.:** | NA | | |
|  | | | |

|  |  |
| --- | --- |
| **Abstract:** |  |
| In this paper, a single-wall carbon nanotube is used to design an on-body patch antenna for biotelemetry. One of the worst diseases is a lung tumor, which has the potential to spread throughout the body and cause cancer. This paper’s primary goal is to use a novel material and observe variation in the S1,1 parameter to identify lung tumors. To detect the presence of lung tumors, an on-body microstrip patch antenna designed in the X band and a three-size lung tumor in a lung phantom model were used. The proposed antenna’s resonant frequency was found to be 8.354 GHz. Here we also found - 49.26 dB s1,1 a VSWR of 1.00 in free space. In the normal lung, s1,1 is-39.55 dB at 8.258 GHz frequency and -39.61 dB at 8.258 GHz found in the tumor affected lung. The operating frequency of this antenna is 5 to 11 GHz. | |