Proposed Area and Topic of Research

Name of the Candidate **:** T R Sangeeta

Field of Research **:** RF Communication

Proposed title of the work:

Nanotechnology in Telecommunication engineering

Research problem:

Implementing advantages of nanotechnology in RF communication. In telecommunication engineering nanotechnology could provide effective solutions for power efficient computing, sensing, memory enlargement, and human machine interaction.

Scientific background:

Nanoscale science can be divided into three broad areas, nanostructures, nanofabrication and Nano characterization with typical applications in Nano electronics, life sciences and energy. There are several applications of nanotechnology nowadays with respect to electrical and electronics fields, apart from that a feasible applications of nanotechnology are; Communications, Bioengineering, Medical Electronics and Robotics. In communicate and information exchange the use of the nanotechnology will be recognized new estimates of unbelievable ways to offer smart transmission media. A future prediction of nanotechnology in telecommunication engineering's such in building a Nano headphones which interact as the cell phone by allowing listening amplification and location focused microphones to interface with voice activated technology. The telecommunication industry will radically get changed into the latest Nanotechnology. Perfection in security and the better impact on the sensor makes the nanotechnology the most significant in its row. Wireless industry mainly aims at the implementation of the intelligence which will ensure that the computation and communication are available as desired.

Novelty:

The introduction of intelligence in the mobile devices will help in embedding the devices in the human environments that can create a new platform which will enable the ubiquitous sensing, computing and communication.

Objectives:

The nano equipments will be loaded with some of the core features like self cleaning, self powered, sensible to the environment with which it is been interacting, flexible and also transparent.

Methodology:

Use of molecules, instead of electromagnetic or acoustic waves, to encode and transmit the information such as molecular transceivers, channel models or protocols for Nano networks. A transistor which is been built using the new material by name Grapheme, mainly consists of a form of graphite that consists of a single layer of carbon atoms which has been arranged in the form of honeycomb pattern. The particular structure will help the electrons to travel through it very quickly and gives greater efficiency than the commonly existing transceiver chip material.

Research time plan(Chart):

Stages of Research	0-6 months	6-12 months	12-18 months	18-24 months	24-30 months	30-36 months
Selection of topic						
Literature Review						
Research methodology plan						
Selection of appropriate research techniques						
Analysis						
Findings and recommendations						
Data Compilation, Publications and Final Report						

Possible outcome:

With nanotechnology mobile phones can act as intelligent sensors that have applications in many industries, among them transportation, communications, medicine and safety.

References:

[1]Sneha Dixit; Future wireless technology. International Journal of Scientific and Research Publications, Volume 5, Issue 2, February 2015.

[2]Saddam Hossain. 5G Wireless Communication Systems. American Journal of Engineering Research (AJER) 2013 Volume 02, Issue 10, pp. 344-353.

[3]Ian F. Akyildiz, Fernando Brunetti , Cristina Blazquez. Nano networks: A new communication paradigm. Computer Networks 52 (2008) 2260-2279 doi:10.1016/j.comnet.2008.04.001.

[4] Martin Zikmunda. Communication technology for nano sensors and nano devices applications in the health industry. NANOCON 2011, Brno, Czech Republic, EU.

[5] Vimal Upadhayayl and Dr. Sonali Agarwal. Application of wireless nano sensor networks for wild lives. International Journal of Distributed and Parallel Systems (IJDPS) Vol. 3, No. 4, July 2012.

[6] Gokul P Nair. Nano core - A Review on 5G Mobile Communications. International Journal of Computer Science and Mobile Computing, ICMIC13, December 2013, pp. 124-133.

[7] Supriya Lokhande, Rupali Pate. Role of Nanotechnology in Shaping the Future of Mobile and Wireless Devices. International Journal of Science and Research (IJSR), Volume 3, Issue 1, January 2014.

[8] M. Saif Islam and Logeeswaran V. J., Nanoscale Materials and Devices for Future Communication Networks. IEEE Communications Magazine, June 2010.

[9] G. Padmavathi, D. Shanmugapriya, N. Valliammal, G. Geetha, C. J. Kabila Kandhasamy. UGC Sponsored Two Day National Conference on Internet of Things World Scientific News 41 (2016) 1-315.

[10] Imthiyaz Ali. A., 5G The Nano Core. International Journal of Engineering and Innovative Technology (IJEIT); Volume 2, Issue 3, September 2012.

[11] D. Hema Latha et al., A Study on 5th Generation Mobile Technology - Future Network Service. (IJCSIT) International Journal of Computer Science and Information Technologies, 5(6) (2014) 8309-8313.

[12]http://www.thinkingwriting.qmul.ac.uk/wishees/collections/queenmary/Electronic%20E ngineering%20Nanotechnology%20Recommendations/pdfs/61115.pdf [Accessed in 2 November 2016].

[13] Joachim Schummer. From Nano-Convergence to NBIC-Convergence: The best way to predict the future is to create it. Springer, 2008 https://pdfs.semanticscholar.org/7614/e7933fcb14c3daf674ebc2abab43129ad343.pdf [Accessed in 27 November 2016].

[14] https://www.electronichouse.com/smart-tv/understanding-new-tv-tech-oled-tv-nanocrystals-quantum-dot-means/ [Accessed in 27 November 2016].

[15]Clark A. Miller at el., Nanotechnology and Society: Ideas for Education and Public Engagement; Nanotechnology & Society: Ideas for Education and Public Engagement, 2007.

[16] Gandhi, O.P.; Riazi, A.: Absorption of millimeter waves by human beings and its biological implications, IEEE Trans. *Microw. Theory Tech.*, 34 (1986), 228–235.CrossRef | Google Scholar