UNIVERSITY GRANTS COMMISSION

MAJOR RESEARCH PROJECT

1.	Broad Subject	:	**ENGINEERING & TECHNOLOGY**
2.	Duration	:	2 Years
3.	Principal Investigator	:	Dr. (Mrs.). S. Kanthamani
4.	**Project Title**	**:**	**Nano Transmission line analysis for interconnect applications**
5.	**Total project cost**	**:**	**Rs.14,27,800/-**

6. Objectives

- To design and analyze a nano transmission line as interconnect for radio frequency applications

Methodology

Modeling:

- Various Mesh based methods such as Finite element method, Method of moments, Finite difference time domain method, Multi resolution methods are available for numerical modeling and analysis of nano dimension devices.
- Because of the mixed technology nature of the nano devices, the complexity of mesh generation grows significantly and it is a time consuming process.
- Mesh less method, which do not require the generations of mesh are very attractive for the modeling and design of nano devices.

Design and Simulation:

- The nano transmission line would be designed and simulated using HFSS software, which supports the analysis of nano meter structures.

Optimization:

- Layout optimization is to be performed for the proposed structure.

As a part of the project, study on high speed digital interconnects using Nano transmission lines for RF applications are to be carried out.

7. Courses organized:

TEQIP sponsored Hands on Training on design, modeling and simulation using PSIM, Thiagarajar College of Engineering, Madurai, 27-06-2014 to 28-06-2014

8. Papers published:

Journal :

S.Kanthamani, G. Gayathri, S. Rohini , Meshless Analysis of bilayer grapheme nanoribbion for radio frequency interconnects, IET Micro & Nano Letters(2015),10(11):613

Conferences:

1. S.Kanthamani, G.Gayathiri, S. Rohini ,Quasi-Static Analysis of Graphene Nano-Ribbon (GNR) for RF Interconnects Using Reproducing Kernel Particle Method, ICIIECS-2015,march 19-20, 2015

2. S. Kanthamani, G.Gayathiri, S. Rohini Performance comparison of variance of Graphene nano ribbon interconnects , ICMAT-2015 at Suntec, Singapore,28th june-3rd july,2015

3. Kanthamani, G.Gayathiri, S. Rohini Radio Frequency performance of carbon nano tube and Graphene nano ribbon interconnects, ICMAT-2015 at Suntec, Singapore,28th june-3rd july,2015

Equipment/Softwares purchased:

PSIM software – PSIM Version 9.1

Projects:

Sl.No	Title	Name of the students	Year
1.	Nano Transmission Line Analysis for Interconnect Applications	M. Bindhiya	2013
2.	Radial point Interpolation method for Carbon Nanotube based Nanoswitches	M. Bindhiya	2014
3.	Numerical Analysis of Graphene Nano Ribbon (GNR)	G.Gayathiri	2015
4.	Analysis of Graphene Nano Ribbon using Radial Point Interpolation Method (RPIM)	J.Nivetha	2016