

# VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING & TECHNOLOGY

## KNOWLEDGE ASSET 2022-23

Name: **Dr M Ramesh**  
Designation: Asst. Prof.  
Department: (H&S) Physics  
Mail I'd: ramesh\_m@vnrvjiet.in



Experience (in years): Teaching: 3 Research: 4 Others (if any, specify): Nill

### 1. Educational / Technical qualifications:

S.No	Level (UG / PG / Ph.D)	Year of passing	Specialization
	Bsc	2006	Maths, Physics, Electronics
	PG	2010	Solid State Physics
	MTech	2014	Computational Technics
	PhD	2020	Computational condensed matter physics
	Research Associative	2022	Solar cell device

### 2. Teaching and Learning:

#### 2.1. Teaching Interests:

Solid state physics, Basic physics, Modern Physics, Solar cell devices.

2.2. Novel Teaching & Learning Techniques adopted: VIT VIL, learning by doing.

2.3. Involvement in curriculum updating / Design: Yes

### 3. Co-curricular and Extra-Curricular Activities

3.1. Interests and Hobbies: Reading and Games

3.2. CCA/ECA Organized: Nill

3.3. CCA/ECA participated: Nill

3.4. Counseling and Mentoring Activity: Nill

3.5. Committees involved in: Nill

Department level: Nill

Institute Level: Nill

### 4. Conference / Workshop / Seminar / Guest Lectures :

4.1 Conducted: Nill

4.2 Attended:

5. **Mamindla Ramesh** and Manish K. Niranjana, "First principle study in MgO surface properties and Pt/MgO/GaAs (110) heterojunctions to estimate Schottky barrier height, band offset and current-voltage characteristics", (**Poster**) at International Conference on Advanced Materials Modelling (ICAMM-2019) at University de Rennes 1, Rennes, France.

6. **Mamindla Ramesh** and Manish K. Niranjana, “Electronic properties of the Mg<sub>2</sub>Si (100) surfaces”, **(Oral)** at USPEX-2019 at University de Rennes 1, Rennes, France.
7. **Mamindla Ramesh** and Manish K. Niranjana, “First principle study in MgO surface properties and Pt/MgO/GaAs (110) heterojunctions to estimate Schottky barrier height, band offset and current-voltage characteristics”, **(Poster and Oral)**, Research day-2019 at CBIT, Hyderabad, India.
8. **Mamindla Ramesh** and Manish K. Niranjana, “First principle study of bias voltage dependent Schottky barrier height of Pt/MgO interface,” **(Poster)**, 3<sup>rd</sup> International Conference on Condensed Matter & Applied Physics 2019, Bikaner, Rajasthan, India.

### 9. Academic Contribution and Research & Consultancy:

5.1. Invited Lectures: Nill

5.2. Articles: 9

5.3. Books published as single author or as editor: Nill

5.4. Projects Guided : Nill

a) UG :      b) PG :

5.5. Research Interests : Theoretical Solid State Physics, *ab-initio* Computational condensed matter Physics, Solar cell devices, Quantum transport theory, DFT +NEGF, Physics of surfaces and interfaces at atomic scale; Quantum transport in nanoscale devices. Multi-junction solar cells devices

5.6. Ph.D students : Nill

a) Enrolled :

b) Submitted :

c) Awarded :

5.7. Papers published in reviewed journals :

S.No	Title of the Paper	Journal Name Vol.No. PP	ISBN/ISSN No.	Impact Factor/ Citation Index	National/ International
1	Phonon modes, dielectric properties, infrared reflectivity, Raman intensity spectra of semiconducting silicide Ba <sub>2</sub> Si: First principle study	Journal of physics and chemistry of solids, 121 219-227	0022-3697	4.38	International
2	Theoretical investigation of lattice dynamics, dielectric properties, infrared reflectivity and Raman intensity spectra of Nowotny chimney-ladder semiconducting silicide Ru <sub>2</sub> Si <sub>3</sub>	Materials chemistry and physics, 222 165-172	0254-0584	4.77	International
3	Surface electronic structure, relaxations and thermodynamic energies of (100), (110) and (111) surfaces of Mg <sub>2</sub> Si: A first-principles theoretical study	Surface Science, 98 106030	1348-0391	2.07	International
4	Asymmetric-dimer	Solid state			

	reconstruction and semiconducting properties of Mg <sub>2</sub> Si (100) surface: Prediction from meta-GGA and hybrid functional study	Sciences, 98 106030	1293-2558	3.75	International
5	Schottky barrier height and modulation due to interface structure and defects in Pt MgO Pt heterojunctions with implications for resistive switching.	Journal of Applied Physics, 127 205306	0021-8979	2.87	International
6	Syntheses of five new layered quaternary chalcogenides SrScCuSe <sub>3</sub> , SrScCuTe <sub>3</sub> , BaScCuSe <sub>3</sub> , BaScCuTe <sub>3</sub> and SrScCuTe <sub>3</sub> : crystal structures, thermoelectric properties and electronic structures.	Inorganic Chemistry Frontiers, 17 4086-4101	2052-1553	7.77	International
7	Influence of phonon assisted tunnelling on photovoltaic properties of BaSi <sub>2</sub> and BaGe <sub>2</sub> <i>p-n</i> homojunction solar cell devices.	Journal of Applied Physics, 131 185001	0021-8979	2.87	International
8	"Electron-Phonon interaction effect in the photovoltaic parameters of indirect (direct) bandgap AlSb (GaSb) <i>p-n</i> junction solar cell devices: A density functional theoretical study.	Physical Chemistry Chemical Physics, 24	24181-24191	3.94	International

#### 5.8. Papers presented at National / International Journals :

S.No	Title of the Paper	Names of the Conference/ Seminars	National/ International	Period
1	First principle study of bias voltage dependent Schottky barrier height of Pt/MgO interface	3 <sup>rd</sup> International Conference on Condensed Matter & Applied Physics 2019	International	2019
2				

#### 5.9. Sponsored research Projects: Nill

S.No	Title	Agency	Period	Grant amount	Ongoing / Completed

5.10 Consultancy Projects: Nill

S.No	Title	Agency	Period	Sanctioned Amount	Ongoing / Completed

**10. Awards / Honors received:**

Qualified Graduate Aptitude Test in Engineering (GATE) in 2010.

Selected to international conference with fellowship ICMM-2019 (attended in France)

Research appreciation certificate from IIT Hyderabad in 2019.

Best Poster Award on Research Day at CBIT, Hyderabad, 2019.

**11. Motto:**

A lot of hard work is hidden behind nice things