

# Curriculum Vitae

**B. Gopal Krishna,**

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## EDUCATION

- 2009** - Master of Science with I division  
Astronomy and Astrophysics, Solid State Physics  
Pt.Ravishankar Shukla University,Raipur (Chhattisgarh).
- 2007** - Bachelor in Science  
Mathematics,Physics,Chemistry  
Pt.Ravishankar Shukla University,Raipur(Chhattisgarh).
- 2002** - 12<sup>th</sup> with I division  
Shishu Niketan E.M.H.S.School, Raipur(Chhattisgarh).
- 2000** - 10<sup>th</sup> with I division  
Shishu Niketan E.M.H.S.School, Raipur(Chhattisgarh).

## TEACHING

- July 2016 – till date** - Assistant Professor in Department of Applied physics,MMCT, Raipur (C.G.). Ratified by CSVTU.
- February 2012-July 2016** - Assistant Professor in Department of Applied physics, Kruti Institute of Technology and Engineering, Raipur (C.G.). Ratified by CSVTU.
- August 2009- February 2012** - Lecturer, Physics), Shishu Niketan E.M.H.S.School, Raipur(C.G.) Ratified by CGBSE.

### **DISCOVERIES AND INVENTIONS**

1. **BGK effect**- The effect is based on studying the uncertainty principle to design a model for the correction of physical quantities like Planck constant, Boltzmann constant etc.
2. **High barrier tunneling**- The phenomenon in which the particles with large size ( $>10^{-4}$  classical particles) cross the barrier of higher energy.
3. **Cold BGK effect**- The effect describes the formation of nanoparticles with unique properties under magnetic field and microbes.

### **DEVICES AND INSTRUMENTS FABRICATED**

1. Fabricated a device called as “**HLDPFD (High and low dimension particle fabrication device)**” to synthesize the nanoparticles.

### **INSTALLATIONS AND SETUPS OF LABORATORIES**

1. Setup High and Low Dimensional Elementary Particle Physics Laboratory at Raipur, India.
2. Setup Physics and Chemistry Laboratory in Central Institute of Plastic Engineering and Technology at Raipur, India.

### **RESEARCH FIELDS**

1. Astronomy and Astrophysics
2. Nanoscience and Nanotechnology
3. Material Science

### **ACADEMIC PROJECTS**

1. “Differential Photometry of Zeta Gemimi (A Cepheid Variable)” in M.Sc.
2. “Mathematical modeling of Coal bed methane generation” from Andhra University.
3. “Study of reduction in stress and positive change in life style through meditation”.

### **UNDERGRADUATE PROJECT GUIDANCE**

1. Project entitled “Absorption and scattering of gamma and beta rays by the Cement nanocomposite” in Prathivi Engineering college, Bhilai.

2. Project entitled “Absorption of CO<sub>2</sub> gases by the Carbon nanocomposite” in KITE,Raipur.

### **SCIENCE REPRESENTATIVE**

1. Member of Chhattisgarh Vigyan Sabha.
2. Judge in the INSPIRE Program conducted by Government of India.

### **WORKSHOPS CONDUCTED**

State level workshop to observe “Venus Transit” in association with SCERT,Chhattisgarh and Vigyan Prasara,New Delhi.

### **PUBLICATIONS**

#### **RESEARCH PAPERS**

1. B.Gopal Krishna, B.Nalinikant , M.Jagannadha Rao, Sanjay Tiwari , H Tanavi “Fabrication of FeTiO<sub>3</sub>/SiO<sub>2</sub> matrix based sensors for glucose detection in blood” in IEEE International WIE Conference on Electrical and Computer Engineering (WIECON-ECE),2016. (Accepted)
2. B. Gopal Krishna , B. Nalinikant , M. Jagannadha Rao , D.K.Golhani , Manisha Soni Golhani “Synthesis of Mercury (Hg) nano range particles” in IEEE International WIE Conference on Electrical and Computer Engineering (WIECON-ECE),2016. (Accepted)
3. B.Gopal Krishna, M.Jagannadha Rao, B.Nalinikant, D.K.Golhani, Sanjay Tiwari, “Highly Sensitive TiO<sub>2</sub> thin film matrix biosensor for glucose detection in blood” in IEEE Conference on Technologies for smart nation- TENCON, 2016.
4. B.Gopal Krishna, M.Jagannadha Rao , B.Nalinikant , D.K.Golhani ,S.A.H.Zaidi, “GeO<sub>2</sub>/SiO<sub>2</sub> matrix Biosensor for detection of probiotic bacteria L. plantarum” in IEEE Conference on Technologies for smart nation- TENCON, 2016.
5. B.Gopal Krishna, D.K.Golhani, M. Jagannadha Rao,B.Nalinikant “V-I characteristics and optical properties of solar cells with SiO<sub>2</sub> and silicon rich oxide with silicon nanoparticles ” in Advanced Science Letters(Accepted).
6. B.Gopal Krishna ,Pooja Prasad,Vibha Sahu,Jyoti Prabha Sahu ,Akansha Agarwal, “Beta backscattering and Gamma Radiation Absorption Characteristics of carbon nanoparticles contained concrete composite” in Advanced Science Letters (Accepted).

7. B.Gopal Krishna, Rajendra Hegadi , M.Jagannadha Rao, Shruti Soni , “Biological synthesis of germanium dioxide nanoparticles using bacteria” in IEEE International WIE Conference on Electrical and Computer Engineering (WIECON-ECE),2015.
8. B. Gopal Krishna, M. Jagannadha Rao “Synthesis of Copper Silicate ( $\text{CuSiO}_3 \cdot \text{H}_2\text{O}$ ) using Copper Oxide, Quartz and Microbes” in International Journal of Engineering and Advanced Technology (IJEAT) , Volume-5 Issue-1,2015.
9. B. Gopal Krishna, M. Jagannadha Rao, “Synthesis of Calcium Silicate ( $\text{CaSiO}_3$ ) Using Calcium Fluoride, Quartz and Microbes” in International Journal of Engineering Research and Applications, Vol. 5, Issue 9,2015.
10. B. Gopal Krishna, M. Jagannadha Rao, “ Chemical synthesis of graphite nanoparticles and study of microwave radiation absorption by graphite nanocomposites” in International Journal of Advanced Research, Volume 3, Issue 9, 391 - 397, 2015.
11. B. Gopal Krishna, M. Jagannadha Rao, “Biosynthesis and Study of Microwave Radiation Absorption by Ilmenite Nanoparticles” in International Journal of Engineering Trends and Applications (IJETA) – Volume 2 Issue 4,, 2015.
12. B. Gopal Krishna, M. Jagannadha Rao , “Biosynthesis and measurement of thermal conductivity of ZnO material” in International Journal of Engineering Trends and Technology (IJETT),Volume 26 Number 5, 2015.
13. M. Jagannadha Rao, B. Gopal Krishna, “Naturally Engineered Analcime for Water Treatment Process and its Calorimetric Properties” in International Journal of Science and Research (IJSR), 2015.
14. B.Gopal Krishna, D.K.Golhani, Sanjay Tiwari, M. Jagannadha Rao, “Thermodynamic Properties of  $\text{MgSiO}_3$  Perovskite using the Debye model” in International Journal of Science and Research (IJSR), 2015.
15. B. Nalinikant, B. Gopal Krishna, M. Jagannadha Rao, “Mathematical modeling of Coal bed methane generation” in International Journal of Science and Research (IJSR), 2015.

## CONFERENCES

1. “Highly Sensitive TiO<sub>2</sub> thin film matrix biosensor for glucose detection in blood” in IEEE Conference on Technologies for smart nation- TENCON,Singapore, 2016.
2. “GeO<sub>2</sub>/SiO<sub>2</sub> matrix Biosensor for detection of probiotic bacteria *L. plantarum*” in IEEE Conference on Technologies for smart nation- TENCON,Singapore, 2016.
3. “V-I characteristics and optical properties of solar cells with SiO<sub>2</sub> and silicon rich oxide with silicon nanoparticles”International conference on nanoscience and nanotechnology for energy applications(EApp),Sathyabhama University and University of Lorraine(France), Chennai, India, 2016.
4. “Beta backscattering and Gamma Radiation Absorption Characteristics of carbon nanoparticles contained concrete composite”International conference on nanoscience and nanotechnology for energy applications(EApp),Sathyabhama University and University of Lorraine(France), Chennai, India, 2016.
5. “Biological synthesis of germanium dioxide nanoparticles using bacteria” International WIE Conference on Electrical and Computer Engineering (WIECON-ECE), BUET, Dhaka, Bangladesh,2015.
6. “Biologically synthesized sugar nanoparticles reduce inflammation after mini stroke ” 4<sup>th</sup> Nano Today Conference, Dubai,UAE,2015.
7. “ Anti-oxidant effect of sugar nanocomposite restrains hyperglycemic conditions in diabetic patient” International Conference on Nano-Bio-Med, IITB and ICTP(Italy) , Mumbai, India,2015.
8. “Naturally Engineered Alacime for water treatment process and its calorimetric properties” in National conference on knowledge, innovation and technology 2015 held in KITE, Raipur.
9. “Thermodynamic properties of MgSiO<sub>3</sub> perovskite using the Debye model” in National conference on knowledge, innovation and technology 2015 held in KITE, Raipur.
10. “Study of reduction in stress and positive change in life style through meditation” in Bharatiya Vigyan Sammelan 2015 held in Goa university, Goa.

11. "Study of methane formation and other molecular substance in petroleum products and their Astro-Chemical relation" in Petro Fest- 2013 held in Andhra University, Visakhapatnam 2013.
12. "Fabrication of Nano-Pico range Hg particles" in National Symposium on nano materials for energy technology 2013 held in Rungta College of Engineering, Raipur.
13. "Studies on Astro-chemistry of minerals and petroleum products" in National seminar cum workshop on Indian Petroleum Resources, Challenges and prospects for exploration and production - opportunities for new and non-conventional energy resources, 27-29th December, 2012, Abstract Volume, pp.47, Visakhapatnam.
14. "Energy efficient biological resources-A quantum model of mechanical machine" in Petro Fest- 2011 held in Andhra University, Visakhapatnam.
15. "Mathematical modeling of coal bed methane generation" in National seminar emerging trends in chemical sciences 2011 held in Kalyan PG college, Bhilai.
16. "Effects of transition in well known mechanical systems" in National conference on high tech materials 2009 held in DIMAT, Raipur.

### **WORKSHOPS**

1. Computational Intelligence for Optimization, Forecasting and Classification conducted by Prof. Ponnuthurai Nagarathnam Suganthan, Electrical and Electronic Engineering, Nanyang Technological University, Singapore, 2016
2. "INUP familiarization workshop on nanofabrication technologies" organized by IIT Bombay.
3. "INUP Hands on Training workshop on nanofabrication technologies" organized by IIT Bombay.
4. "Workshop on rock sedimentation in bheemili beach Vishakapatnam" organized by Delta studies Andhra University.
5. "Workshop on Comet ISON " organized by SCERT, Raipur and Vigyan Prasar New Delhi.

6. “Workshop on Transit of Venus” organized by SCERT,Raipur and Vigyan Prasar New Delhi.