Dr. Brian Fernandes

UGC - Post Doctorate Fellow

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"Success is always sweet, but the secret of success is sweat"

Education

2021- **PGDIE-IBEC**, *Christ Deemed to be University*, Bangalore.

2012–2018 **PhD in Physics**, *National Institute of Technology Karnataka*, Surathkal, India.

Thesis Title"Electrical Switching Characteristics and Thermal Properties of Tellurium Based Chalcogenide Glassy Alloys", (Feb 2019).

2006–2008 **MSc in Electronics**, *Mangalore University*, Mangalore.

2003–2006 **BSc in Physics, Electronics, and Maths**, *St. Aloysius Degree College*, Mangalore.

Experience

Since June 2020 **UGC-Kothari Post Doctoral Fellow**, *Indian Institute of Science (IISc)*, Bangalore India.
Working as a Research Associate in the field of IFNMR.
My work involves instrumentation, experimentation, characterization and analysis of results.

Aug 2019 - May 2020 **Assistant Professor**, *Presidency university*, Bangalore, India.
Worked as Assistant Professor in the Department of Physics.
Member of Departmental Administration.
Member of Organizing committee of University Science Club.
Member of Department of Student Affairs
Faculty Convenor of Speakers and Anchors Club.

Aug 2018 - Aug 2019 **Research Associate**, *Indian Institute of Science*, Bangalore, India.
Worked on chalcogenide glassy semiconductors, materials for photovoltaic applications and Carbon Nitrides.
Worked as a UG Instructor.
Mentored three Master students for their final year project work.
Restructured laboratory as per safety norms.

2012 - 2018 **Research Scholar**, *National Institute of Technology Karnataka*, Surathkal.
Apart from research studies, we had following duties:
I worked as a tutor for MSc students, teaching them electronics.
Handled Engg. Physics Laboratory course for B.Tech students and M.Sc students.
Volunteered and played major role during conferences and workshops conducted by the Physics department.

Nov 2008 - Jan 2012 **Electronics Lecturer**, *Sharada PU College*, Mangalore.
Taught electronics to I and II PUC classes, with incredible success.
Coordinator for cultural activities and remedial classes.
Mentored students during Inter- Collegiate fests, resulting in overall championship to the institution.

2009 - 2011 **Electronics Lecturer**, *Cosmos Tutorials*, Mangalore.
I worked as a tutor in analog electronic circuits, microprocessors, linear ICs and applications.
I taught students of engineering.

Jan 2008 - Aug 2008 **Project Trainee**, *WEP Peripherals*, Mysore.
I worked in the R & D department, on the subject of power electronics.

Jul 2005 - Apr 2006 **Volunteer Kannada Tutor**, *St. Aloysius College*, Mangalore.
I volunteered to teach Kannada to students from the Social Service department in St. Aloysius College.

Honours and Awards

2020 **Dr D S Kothari Post Doctoral Fellowship**, *by University Grant Commision, Govt. of India, New Delhi*, at Indian Institute of Science Bengaluru.

2019 **Editorial Board Member-Electrical Science and Engineering**, *Bilingual Publishing CO (Singapore)*.

2012 **PhD Junior and Senior research Fellowship**, *by National Institute of Technology Karnataka, Surathkal.*.

2006 **The Best Volunteer**, *The best volunteer at the university level*, Mangalore.

2006 **NSS Special Award**, *For excellent service towards the college*, Mangalore.

2006 **Meritorious Service Award**, *For an overall contribution towards the college*, St. Aloysius Degree College, Mangalore.

2003 **Constructive Activity Award**, *For the best overall student*, St. Aloysius Pre University College, Mangalore.

Research Accomplishments

- Conversant with handling physical vapour deposition system.
- Experienced in characterization of chalcogenides using Keithley 2410C Source meter, Perkin Elmer DSC 8000 instrument and also their computer control.
- Expertized in vacuum sealing using oxyacetylene flame burner
- Indigenously designed and patented high temperature melt quenching system to prepare chalcogenide glassy alloys with ease.
- Established lab facilities such as vacuum sealing system, vacuum furnace, high temperature melt quenching system, electrical characterization system and photoconductivity system.

Research Skills

Material Characterization

- Spectroscopy : FTIR, UV-Visible, Raman, EDAX.
- Microscopy: SEM, TEM and AFM.
- X-Ray Diffraction.
- Thermal Analysis : DSC and TGA.
- Electrical Measurements : DC and AC conductivity.

Material Procssing

- Thin film deposition - Chemical vapour deposition, thermal evaporation and sputtering.
- Glass preparation by melt quenching method.

Extracurricular Activities

- Correspondent and memeber of Chaithanya Foundation(A social service organization) Siddakatte
- Served student council of St.Aloysius college in the year 2004,2005,2006

- Served student council of Mangalore university 2007,2008
- Active Compere (Master of ceremonies) since 2012
- Active Resource person since 2008. I have addressed youth on the topics of personality development, public speaking etc.
- Passionate Writer: I write articles for the Konkani and Kannada monthly magazines.
- Conducted Research Premier League(RPL) in the year 2015, 2016 and 2017 at NITK, Three days inter-department sports activities for research scholars.

Computer Skills

Software Packages: Microsoft Office, NI Multisim, Origin, ImageJ, CorelDraw, XpertHigh Score, Overleaf LaTeX.

Languages

Fluent: English, Kannada, Hindi, Tulu, Konkani

Intermediate: Tamil, Telugu

Patent

High temperature melt quenching system for preparing glassy alloys and a method thereof. *Brian Jeevan Fernandes, N K Udayashankar and S Harish.* **Indian Patent Application No.201641044209**. *Complete Patent has been Published*

Publications

1. Memory type switching behavior of $Ge_{20}Te_{80-x}Sn_x$ ($0 \leq x \leq 4$) chalcogenide compounds. *Brian Jeevan Fernandes, Kishore Sridharan, Pumlian Munga, K Ramesh and N K Udayashankar.* **J. Phys. D: Appl.Phys. 49 (2016) IOP Publishing.**
2. Crystallization kinetics of Sn doped Ge20Te80-xSnx chalcogenide glassy alloys. *Brian Jeevan Fernandes, N Naresh, K Ramesh, Kishore Sridaran and N K Udayashankar.* **J. Alloys Compd, 721, (2017) Elsevier Publication**
3. Electrical switching in Si20Te80-xBix chalcogenide glassy alloys. *Brian Jeevan Fernandes, K Ramesh and N K Udayashankar.* **J. Non-Cryst Solids, 483, (2018), Elsevier Publication**
4. Electrical switching and thermal behavior of ternary Si15Te85-xBix chalcogenide glasses. *Brian Jeevan Fernandes, Pumlianmunga, K Ramesh and N K Udayashankar* **Materials Today: Proceedings 5(10), (2018) 21292-21298, Elsevier Publication**
5. Thermal stability and crystalization kinetics of Bi doped Si15Te85-xBix chalcogenide glassy alloys. *Brian Jeevan Fernandes, Pumlianmunga, K Ramesh and N K Udayashankar* **Materials Today: Proceedings 5(10), (2018) 16237-16245, Elsevier Publication**
6. Gamma irradiation effect on structural,optical and electical properties of organometallic potassium hydrogen oxalate oxalic acids dihydrate single crystal. *K Mahendra, K K Nayak, Brian Jeevan Fernandes and N K Udayashankar* **Journal of Materials Science: Materials in Electronics 29(22),(2018) 18905-18912, Springer Publication**

7. Role of soaking time on the phase evolution of Cu2ZnSnS4 polycrystals synthesized using melting route for photovoltaic applications.*N J Choudhari, Y Raviprakash, Brian Jeeevan Fernandes, N K Udayashankar* **J. Alloys Compd, (2019), Elsevier Publication**

8. Crystallization kinetics of $Si_{20}\ Te_{80-x}\ Bi_x$ ($0 \leq x \leq 3$) chalcogenide glasses. *Brian Jeevan Fernandes, K Ramesh and N K Udayashankar* **Material Science and Engineering: B, (2019), Elsevier Publication**

9. Synthesis, thermal stability and structural transition of cubic SnS nanoparticles. *S.S. Hegde, Prashantha Murahari, Brian Jeevan Fernandes, R. Venkatesh, K. Ramesh* **J. Alloys Compd, (2020), Elsevier Publication**

10. Effect of Er doping on the ammonia sensing properties of ZnO thin films prepared by a nebulizer spray technique. *K. Deva Arun Kumar, S. Valanarasu, Joice Sophia Ponraj, Brian Jeevan Fernandes, M. Shkir, S. AlFaify, Prashantha Murahari, K. Ramesh***Journal of Physics and Chemistry of Solids, (2020),Elsevier Publication**

Presentations at International Conferences

1. Synthesis and studies on surface morphology of Te-based chalcogenide glasses. *Brian Jeevan Fernandes and N K Udayashankar*, **International Conference on Electron Microscopy EMSI - 2014** , University of Delhi, Delhi.(POSTER)

2. Electrical switching studies of ternary $Si_{15}\ Te_{85-x}\ Bi_x$ ($0 \leq x \leq 2$) chalcogenide glasses. ***Brian Jeevan Fernandes**, Pumlian Munga, K Ramesh and N. K. Udayashankar*, **International Conference on Smart Engineering Materials ICSEM-2016**, RV College Bengaluru, Bengaluru .(ORAL)

3. Thermal stability and crystallization kinetics of Bi doped $Si_{15}\ Te_{85-x}\ Bi_x$ ($0 \leq x \leq 2$) chalcogenide glassy alloys. *Brian Jeevan Fernandes, Pumlian Munga, K Ramesh and N K Udayashankar*, **International Conference on Advanced Materials SCICON-2016**,Amrita Vishwa Vidyapeetham, Coimbatore. (ORAL)

4. AC conductivity and dielectric properties of Si20Te80-xBix (x=1,2) chalcogenide semiconductors. *Brian Jeevan Fernandes, Achyutha Kodibailu, M N Satyanarayam and N K Udayashankar* **International Conference on Recent Advances in Material Science and BioPhysics RAMSB -2018** Mangalore University, Mangalagangothri, Mangalore.(ORAL)

5. The mechanism of electrical switching in $Si_{20}\ Te_{80-x}\ Bi_x$ ($0 \leq x \leq 3$) chalcogenide glassy alloys. *Brian Jeevan Fernandes, Prashanth M and K Ramesh* **In-house Symposium - 2018**, Indian Institute of Science Bengaluru. (ORAL)

6. Effect of Er doping on the ammonia sensing properties of ZnO thin films prepared by a nebulizer spray technique. *K. Deva Arun Kumar, Brian Jeevan Fernandes, Prashantha Murahari and K. Ramesh* **In-house Symposium - 2019**, Indian Institute of Science Bengaluru. (POSTER)

7. Optical properties of Se-Te-Sb amorphous chalcogenide semiconductors using diffuse reflectance spectroscopy.*Brian Jeevan Fernandes, Prashantha Murahari, Shwetha chahal and K Ramesh***DAE Solid State physics Symposium -2019** Indian Institute of Technology-Jodhpur, Rajasthan. (POSTER)

8. Carbon nitride for Photovoltaic Applications. *Prashantha Murahari, Brian Jeevan Fernandes, Deepak Sharma, Remi Feniton Simon and K Ramesh***DAE Solid State physics Symposium -2019** Indian Institute of Technology-Jodhpur, Rajasthan. (POSTER)

9. Electrical switching characteristics and thermal properties of tellurium based chalcogenide glassy alloys *Brian Jeevan Fernandes and N K Udayashankar***DAE Solid State physics Symposium -2019** Indian Institute of Technology-Jodhpur, Rajasthan. (Thesis Presentation - POSTER)

Workshops and Seminars Attended

- One day workshop on **"Matlab and its application areas"** held at National Institute of Technology Calicut, Kerala, on 17th Mar 2012.
- Two week Refresher course in **"Experimental Physics"** held at National Institute of Technology Karnataka - Surathkal, during Jul 16th - 31st 2012.
- Workshop on **"Quantum mechanics and applications"** held at National Institute of Technology Karnataka - Surathkal, during Mar 22nd - 24th, 2013
- Workshop on **"Principles of analog and digital measurements and hardware debugging techniques"** held at National Institute of Technology Karnataka - Surathkal, on 1st Sept 2016.
- International winter school on **"Organic electronic materials and devices"**held at National Institute of Technology Karnataka - Surathkal, on 1st Sept 2016.
- GIAN course on **"Organic semiconductors for microelectronics and display applications."** held at National Institute of Technology Karnataka - Surathkal, during May 30th -Jun 3rd 2016.
- Awareness programme on **"Intellectual property rights"** held at National Institute of Technology Karnataka - Surathkal, On 1st Sept 2016.
- Pre-conference tutorials of the **"International conference on smart engineering materials (ICSEM)"** organized by R V college of Engineering, Bengaluru during 20-22 Oct 2016.

References

Available on Request