

# Curriculum Vitae

**Name** : **Dr. Farha Khatun**  
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**Date of Birth** : 03/10/1987  
**Nationality** : Indian

## **Present Position:**

**Designation** : SACT - I in Department of Physics  
**Institution** : Basanti Devi College, Kolkata- 700029  
**Period** : 01/01/2020 to present

## **Academic Qualifications:**

Examination/Degree	Institution/Board	Year of passing	Marks (%)	Division
M.P.	Jadavpur Vidyapith / WBBSE	2003	88.00	1 <sup>st</sup>
H.S.	Jadavpur Vidyapith / WBCHSE	2005	75.50	1 <sup>st</sup>
B.Sc. (Physics)	Basanti Devi College, University of Calcutta	2009	62.75	1 <sup>st</sup>
M.Sc. (Physics)	Presidency College, University of Calcutta	2011	65.20	1 <sup>st</sup>
Ph.D	Jadavpur University	16 <sup>th</sup> November, 2021	----	-----

## Fellowship:

1. RUSA 2.0 fellowship holder from March, 2019 – March, 2020.

## Teaching Areas:

Mathematical Physics (Vector), Heat and Thermodynamics, Optics, Electronics, Electricity and Magnetism, Energy sources, Statistical Mechanics (Advanced), Nano materials and Applications.

## Research Area:

### Material Sciences (Experimental):

Electroactive Polymers, Polymer nanocomposites thin films, Nanoparticles, High dielectric materials, Polymer based energy storage devices, Photo-supercapacitor, Self-charging Power Bank, Bio-polymer based photo-rechargeable power cells.

## Teaching Experience:

Designation	Name of the Institution	period
Guest Lecturer	Maharaja Manindra Chandra College	30.08.2011 to 30.06.2015
Guest Lecturer	Basanti Devi College	01.10.2012 to 31.12.2019

## Research Experience:

1. PhD Research Scholar at Department of Physics, Jadavpur University, Kolkata- 700032 from 01/10/2015 to 01/10/2021.

## List of Publications:

1. ***Farha Khatun***, N. A. Hoque, P. Thakur\*, N. Sepay, S. Roy, B. Bagchi, A. Kool and S. Das, "4'-Chlorochalcone assisted electroactive  $\beta$  polymorph rich and high dielectric PVDF film

based simplex and talented energy storage system capable of self-charging under light”, *Energy Technol.* 2017, 5, 2205–2215.

2. **Farha Khatun**, P. Thakur, N. A. Hoque, A. Kool, S. Roy, P. Biswas, B. Bagchi, S. Das, “In situ synthesized SrF<sub>2</sub>/Polyvinylidene Fluoride nanocomposite film based Photo-Power Cell with imperious performance and stability” *Electrochimica Acta*, 2018, 282, 194-204.

3. **Farha Khatun**, P. Thakur, N. A. Hoque, A. Kool, S. Roy, P. Biswas, B. Bagchi, S. Das, “In situ synthesized electroactive and large dielectric BaF<sub>2</sub>/PVDF nanocomposite film for superior and highly durable self-charged hybrid photo-power cell” *Energy Conversion and Management*, 2018, 171, 1083–1092.

4. **Farha Khatun**, Pradip Thakur, Arpan Kool, Swagata Roy, Nur Amin Hoque, Prosenjit Biswas, Biswajoy Bagchi and Sukhen Das. Photo-Rechargeable Organic–Inorganic Dye-Integrated Polymeric Power Cell with Superior Performance and Durability, *Langmuir* 2019, 35, 6346–6355.

5. **Farha Khatun**, Pradip Thakur, Biswajoy Bagchi and Sukhen Das, Photo-charging polymeric sodium-ion cell based on YSZ/PVDF film, *Appl. Phys. Lett.* 115, 2019, 183904.

6. N. A. Hoque, P. Thakur\*, S. Roy, A. Kool, B. Bagchi, P. Biswas, Md. M. Saikh, **Farha Khatun**, S. Das and P. P. Ray, “Er<sup>3+</sup>/Fe<sup>3+</sup> Stimulated Electroactive, Visible Light Emitting, and High Dielectric Flexible PVDF Film Based Piezoelectric Nanogenerators: A Simple and Superior Self-Powered Energy Harvester with Remarkable Power Density”, *ACS Appl. Mater. Interfaces* 2017, 9, 23048–23059.

7. S. Roy, P. Thakur\*, N. A. Hoque, B. Bagchi, N. Sepay, **Farha Khatun**, A. Kool, and S. Das, “Electroactive and High Dielectric Folic Acid/PVDF Composite Film Rooted Simplistic

*Organic Photovoltaic Self-Charging Energy Storage Cell with Superior Energy Density and Storage Capability*”, **ACS Appl. Mater. Interfaces** 2017, 9, 24198–2420.

8. P. Thakur\*, A. Kool, N. A. Hoque, B. Bagchi, **Farha Khatun**, P. Biswas, D. Brahma, S. Roy, S. Banerjee, S. Das, “Superior Performances of In situ Synthesized ZnO/PVDF Thin Film based Self-poled Piezoelectric Nanogenerator and Self-Charged Photo-Power Bank with High Durability” **Nano Energy** 2018, 44, 456–467.

9. P. Biswas, N. A. Hoque, P. Thakur, Md. M. Saikh, S. Roy, **Farha Khatun**, B. Bagchi and S. Das. *Highly Efficient and Durable Piezoelectric Nanogenerator and Photo-power cell Based on CTAB Modified Montmorillonite Incorporated PVDF Film*, **ACS Sustainable Chem. Eng.** 2019, 7, 4801–4813.

10. Swagata Roy, Pradip Thakur, Nur Amin Hoque, Arpan Kool, **Farha Khatun**, Prosenjit Biswas, Biswajoy Bagchi, Sukhen Das, “Self-charging photo-power cell based on a novel polymer nanocomposite film with high energy density and durability”, **Polymer Journal**, <https://doi.org/10.1038/s41428-019-0230-3>, 2019.

11. Prosenjit Biswas, Nur Amin Hoque, Pradip Thakur, Md. Minarul Saikh, Swagata Roy, **Farha Khatun**, Biswajoy Bagchi and Sukhen Das, *Portable Self-Powered Piezoelectric Nanogenerator and SelfCharging Photo-Power Pack Using In Situ Formed Multifunctional Calcium Phosphate Nanorod-Doped PVDF Films*, **Langmuir**, DOI:10.1021/acs.langmuir.9b03264.

12. Sanoar Molla, **Farha Khatun** and Pradip Thakur, *Bio-polymer poly(lactic acid) thin film-based K-ionassociated photo-rechargeable power cell*, **J Mater Sci: Mater Electron**, <https://doi.org/10.1007/s10854-021-07385-1>.

## **List of Conferences, Workshops or Seminars Attended:**

1. Participation in a **“One-day seminar on Some Recent Trends in Research in Physics”** (SRTRP - 2016) on 21<sup>st</sup> March, 2016 Organized by Department of Physics, Jadavpur University, Kolkata.”
2. Participation in a **“One-day Seminar on Recent Trends in Composite Material”** held on 18<sup>th</sup> August 2016, at Mechanical Engineering Department under TEQUIP-JU program at Jadavpur University, Kolkata.
3. Participation and Presentation of a POSTER in a **“Two day Seminar on “Twists and Turns in Physics Research: Special Emphasis on Condensed Matter and Biophysics (TTPR-2017)”** on 21-22 February, 2017 Organized by Department of Physics, Jadavpur University, Kolkata, Supported by UGC-DSA-I Programme”, entitled **“A Study on Enhanced Electroactive Phase Crystallization, Dielectric and Optical Properties of Chalcone Incorporated Poly(Vinylidene Fluoride) Thin Films”**.
4. Participation and Presentation of a POSTER in the **“Fourth International Symposium on Semiconductor Material and Devices ISSMD 4”** held on 8-10<sup>th</sup> March, 2017, Organized at the School of Materials Science and Nanotechnology, Jadavpur University, Kolkata, West Bengal, INDIA, entitled **“Phenosafranin-Polyvinylpyrrolidone (PSF-PVP) based Energy Storage Device Charged under Light Illumination”**.
5. Participation in a **“Two Day Workshop on IoT and Data Mining”** held on 23-24<sup>th</sup> March, 2017, Organised by Department of Computer Science and Engineering, Jadavpur University, under Technical Education Quality Improvement Program – II (TEQIP), Jadavpur University.
6. Participation and Presentation of a POSTER in the **“One day National Symposium on Nanotechnology: From Materials to Medicine and Their Social Impact”** held on 25<sup>th</sup> March 2017, at Birla Industrial and Technological Museum, Kolkata entitled **“Improvement**

*of Electroactive Phase Nucleation, Dielectric and Optical Properties of Chalcone Modified Poly (Vinylidene Fluoride) Thin Films”*

7. Participation in the “**International Workshop on Advanced Hybrid Separation Techniques in Industrial Wastewater Management**” sponsored by UGC, under Indo-Norwegian collaboration program (INCP 2014) held on 8-9<sup>th</sup> December 2017, at Chemical Engineering Department Jadavpur University, Kolkata in association with CHEMBridge.

8. Participation and Presentation of a POSTER in the International Conference “**Emerging Trends in Chemical Sciences**” held during 26-28<sup>th</sup> February, 2018, at Department of Chemistry, Dibrugarh University, Dibrugarh, Assam, India entitled “Development of Electroactive and High Dielectric 4'-Chlorochalcone-PVDF Composite Based Photovoltaically Self-Charging Energy Storage Device” and obtained the **BEST POSTER AWARD**.

9. Participation and Presentation of a POSTER in the one day seminar on “**Recent trend in Frontier research in Physics**” on 6<sup>th</sup> March, 2018 held at Department of Physics, Jadavpur University, Kolkata – 700032 entitled “A study on enhanced electroactive  $\beta$  phase crystallization, dielectric and optical properties of in situ synthesized BaF<sub>2</sub> nanoparticles modified poly (vinylidene fluoride) thin films”.

10. Participation and **ORAL** presentation in the “**International Conference on Material Science and Engineering (Materials Oceania 2019)**” on September 16-18, 2019 held in Melbourne, Australia entitled “Development of a self-charged photo-power cell based on in situ synthesized electroactive and large dielectric SrF<sub>2</sub>/PVDF nanocomposite film”.

11. Participation in the “**ONE DAY SEMINAR-CUM-WORKSHOP ON Python Computing: Some Applications in Mathematical Physics**” held at Basanti Devi College, Kolkata on February 28, 2020, organised jointly by the Department of Physics, Basanti Devi

*College and Nabagram Hiralal Paul College in collaboration with Undergraduate Board of Studies in Physics, University of Calcutta.*

*12. Participation in the “**One Day Workshop on Material Synthesis and Characterization Techniques**” Sponsored by DST-SERB held on 29th February, 2020 organized by Department of Physics, Jadavpur University, Kolkata.*