

## DR. AYAN MUKHERJEE

Assistant Professor  
Department of Physics  
College of Commerce, Arts & Science, Patna  
(A Constituent unit of Patliputra University)  
Phone : 8372098447  
E-mail : [ayanmukherjee88@gmail.com](mailto:ayanmukherjee88@gmail.com)  
Date of Birth : 23.09.1984



*Keen interest in teaching Physics in all level. Currently teaching Physics at UG and PG level. Engaged in material science research specially synthesis and characterization of thin film for energy storage devices.*

### EDUCATION

Degree	Year	Subject	University/ Institution	% Of marks
Ph. D In Physics	2016	Physics	THE UNIVERSITY OF BURDWAN (NAAC A Graded)	-
M.Sc	2008	PHYSICS	THE UNIVERSITY OF BURDWAN (NAAC A Graded)	76.58 %
B. Sc (HONS)	2006	PHYSICS(HONS), CHEMISTRY, MATH	THE UNIVERSITY OF BURDWAN (NAAC A Graded)	63.75 %

### Academic Achievements :

- ❖ Received SERB CRG Project titled "Development of porous  $\text{Co}_3\text{O}_4$  /  $\text{NiCo}_2\text{O}_4$  nanostructured thin film for high performance supercapacitor electrode" (**fund worth 35 lakh**) from SCIENCE & ENGINEERING RESEARCH BOARD (**SERB**), Govt. Of India. (File Number: **CRG/2022/005085**)
- ❖ Received UGC-DAE CSR sponsored project titled "Biomaterial template derived metal doped  $\text{NiCo}_2\text{O}_4$  nanostructure for improved supercapacitor electrode" from UGC-DAE CSR under CRS with **File No. CRS/2022-23/1189**.
- ❖ **Joint CSIR-UGC NET** qualified in Physical Science in 2009.
- ❖ **JEST** qualified in Physics in 2010.

## Ph. D Details :

**Thesis Title :** “PREPARATION OF SOME UNDOPED AND DOPED METAL SULPHIDE THIN FILMS BY CBD/MODIFIED CBD METHOD AND THEIR CHARACTERIZATION.

**Year of Award :** 2016 (09.06.2016)

**Research Supervisor :** Prof. Partha Mitra,  
Professor, Department of Physics, The University of Burdwan.

**Name of University :** The University of Burdwan, Rajbati, Burdwan-713104,  
West Bengal, India.

## Work Experience :

S.No.	Positions held	Name of the Institute	From	To	Pay Scale
1.	ASSISTANT PROFESSOR	R.R.S. COLLEGE (A CONSTITUENT UNIT OF PATLIPUTRA UNIVERSITY), MOKAMA	06.09.2017	21.01.2021	57700 (LEVEL- 10) 7 <sup>TH</sup> PAY
2.	ASSISTANT PROFESSOR	COLLEGE OF COMMERCE, ARTS & SCIENCE (A CONSTITUENT UNIT OF PATLIPUTRA UNIVERSITY), PATNA	22.01.2021	TILL NOW	57700 (LEVEL- 10) 7 <sup>TH</sup> PAY

## Research Interest

1. Synthesis and Characterization of Nanomaterial/ Thin film/ Nanocomposites
2. Energy storage devices.
3. Gas Sensors
4. Biodegradable materials for devices.

## Research Experiences

- ❖ Principal Investigator of SERB CRG Project titled "Development of porous Co<sub>3</sub>O<sub>4</sub> / NiCo<sub>2</sub>O<sub>4</sub> nanostructured thin film for high performance supercapacitor electrode" (fund worth 35 lakh) from SCIENCE & ENGINEERING RESEARCH BOARD (SERB), Govt. Of India. (File Number: CRG/2022/005085)
- ❖ Principal Investigator of UGC-DAE CSR sponsored project titled “Biomaterial template derived metal doped NiCo<sub>2</sub>O<sub>4</sub> nanostructure for improved supercapacitor electrode” from UGC-DAE CSR under CRS with **File No. CRS/2022-23/1189**

- ❖ International Collaboration:  
Dr. Ahmed A. Aboud, Department of Physics,  
Beni-Suef University, Beni-Suef, Egypt

## **Awards and Memberships:**

- ❖ Selected for **National Scholarship Scheme by MHRD** (Govt. of India) for 2001-2002.
- ❖ Life member of Indian Association of Physics Teacher (IAPT) with membership number L8814.
- ❖ Life member of **Indian Association of Nanoscience and Nanotechnology** (IANN LT 1173).
- ❖ **Senior Advisor** in AKASHGANGA (ISSN 2456-7663) Science Magazine's advisory board.

## **Administrative Achievements :**

- ❖ Served as Head, Department of Physics, RRS College, Mokama, Patna from 06.09.2017 to 21.01.21.
- ❖ Working as Co-ordinator UGC -Cell of College of Commerce, Arts and Science, Patna from 23.07.2021.
- ❖ University Representative at Career Counselling Cell of College of Commerce, Arts and Science, Patna from 15.02.2023 to train students for NET/GATE exam.
- ❖ Act as Joint Organizing Secretary of DST-SERB, CSIR, DAE sponsored International Conference on Electronic Materials and Applications 2022 (ICEMA 2022) held at A. N. College, Patna on 16-17 Sept 2022
- ❖ Act as Organizing Secretary of DST-SERB sponsored International Conference ICOMPA-2023 held at College of Commerce, Arts and Science, Patna on 01-03 March, 2023.
- ❖ Co-ordinator at IPR awareness programme under NIPAM, Office of Controller General of patents, Designs and Trade Marks, DPIIT, Ministry of Commerce and Industry, Government of India on 19.07.2023.

**Publications : *International : 19    National : 05***

**Books Chapters : International : 02**

**Total Citation: 418**

**h-Index: 12**

**i 10-Index: 14**

S l. N o.	Title	Name of Authors	Name of Journal	Volume and Page no/Article Id. DOI	ISSN	Year	Impact Factor
1.	Pure and co-doped ZnO nano-sheets thin films as UV detectors	Ahmed A. Aboud , Ayan Mukherjee , M. Al-Dossari , N. S. Abd EL-Gawaad , and Ahmed M. Saad	J Mater Sci: Mater Electron	Volume: 34, Id: 1344 <a href="https://doi.org/10.1007/s10854-023-10789-w">https://doi.org/10.1007/s10854-023-10789-w</a>	1573-482X	2023	2.80
2.	Physical properties of Ni: Co <sub>3</sub> O <sub>4</sub> thin films and their electrochemical performance	Mahmoud El-araby, M M Khalefa, Ayan Mukherjee, M A Mohaseb, Ahmed A Aboud	Physica Scripta	Vol 98(4), Page No 045816 <b>DOI</b> 10.1088/1402-4896/acc28b	1402-4896	2023	3.081
3.	Effect of Electrolyte Concentration on Electrochemical Performance of Bush Like $\alpha$ -Fe <sub>2</sub> O <sub>3</sub> Nanostructures	Sk Yasnur, Samik Saha, Apurba Ray, Mahima ranjan Das, Ayan Mukherjee, Sachindranath Das	Chemistry Select	Vol 6, page no 9823 <a href="https://doi.org/10.1002/slct.202101641">https://doi.org/10.1002/slct.202101641</a>	2365-6549	2021	2.109
4.	Influence of nickel incorporation in CdS: Structural and electrical studies	Ayan Mukherjee, Mahima Ranjan Das, Ankita Banerjee, Partha Mitra	Thin Solid Films	704, 138005 <a href="https://doi.org/10.1016/j.tsf.2020.138005">https://doi.org/10.1016/j.tsf.2020.138005</a>	0040-6090	2020	2.030
5.	The effect of Cu-doping on CdS thin films deposited by the spray pyrolysis technique	Ahmed A Aboud, Ayan Mukherjee, Neerish Revaprasadu, Ahmed Nagaty Mohamed	Journal of Materials Research and Technology	8(2), 2021-2030 <a href="https://doi.org/10.1016/j.jmrt.2018.10.017">https://doi.org/10.1016/j.jmrt.2018.10.017</a>	2238-7854	2019	5.289
6.	Studies on Multifunctional Properties of SILAR	Mahima Ranjan Das , Ayan Mukherjee, Payel Maiti, Sachindranath Das Partha Mitra	Journal of Electronic Materials	48(5) 2718-2730 <a href="https://doi.org/10.1007/s11664-019-06940-1">https://doi.org/10.1007/s11664-019-06940-1</a>	0361-5235	2019	1.938

	Synthesized CuO Thin Films for Enhanced Supercapacitor, Photocatalytic and Ethanol Sensing Applications,						
7.	Influence of dipping cycle on SILAR synthesized NiO thin film for improved electrochemical performance	Mahima Ranjan Das, Atanu Roy, Siyasanga Mpelane, Ayan Mukherjee, Partha Mitra, Sachindranath Das	Electrochimica Acta	273, 105-114 <a href="https://doi.org/10.1016/j.electacta.2018.04.024">https://doi.org/10.1016/j.electacta.2018.04.024</a>	0013-4686	2018	6.215
8.	Influence of Cu incorporation on ionic conductivity and dielectric relaxation mechanism in NiO thin films synthesized by CBD	MR Das, A Mukherjee, P Mitra	Journal of Materials Science: Materials in Electronics	29, 1216–1231 <a href="https://doi.org/10.1007/s10854-017-8024-x">https://doi.org/10.1007/s10854-017-8024-x</a>	1573-482X (e-ISSN) 0957-4522 (print)	2017	2.220
9.	Characterization of Sn Doped ZnS Thin Films Synthesized by CBD	Ayan Mukherjee and Partha Mitra	Materials Research: - Ibero-american Journal of Materials	20(2): 430-435 <a href="https://doi.org/10.1590/1980-5373-MR-2016-0628">https://doi.org/10.1590/1980-5373-MR-2016-0628</a>	1980-5373	2017	1.524
10.	Structural, optical and electrical characterization of CBD synthesized CdO thin films: influence of deposition time	MR Das, A Mukherjee, P Mitra	Materials Science-Poland	35(3), 470-478 <a href="https://doi.org/10.1515/msp-2017-0063">https://doi.org/10.1515/msp-2017-0063</a>	0137-1339 (print) 2083-134X (e-ISSN)	2017	0.911

1 1.	Structural, optical and ac electrical characterization of CBD synthesized NiO thin films: Influence of thickness	MR Das, A Mukherjee, P Mitra	Physica E: Low-dimensional Systems and Nanostructures	93, 243-251 <a href="https://doi.org/10.1016/j.physe.2017.06.018">https://doi.org/10.1016/j.physe.2017.06.018</a>	1386-9477	2017	3.570
1 2.	Influence of copper incorporation in CdS: Structural and morphological studies	P. Mitra A. Mukherjee, P. Ghosh, A.A. Aboud	Materials Chemistry and Physics	184, 101-109 <a href="https://doi.org/10.1016/j.matchemphys.2016.09.030">https://doi.org/10.1016/j.matchemphys.2016.09.030</a>	0254-0584	2016	3.408
1 3.	Microstructural characterization of chemical bath deposition synthesized CdS thin films: application as H <sub>2</sub> S sensor	A Mukherjee, P Ghosh, M Fu, AA Aboud, P Mitra	Advanced Science Letters	22(1), 179-183 <a href="https://doi.org/10.1166/asl.2016.6779">https://doi.org/10.1166/asl.2016.6779</a>	1936-7317	2016	0.200
1 4.	Synthesis of nanocrystalline CdS thin film by SILAR and their characterization	A Mukherjee, B Satpati, SR Bhattacharyya, R Ghosh, P Mitra	Physica E: Low-dimensional Systems and Nanostructures	65, 51-55 <a href="https://doi.org/10.1016/j.physe.2014.08.013">https://doi.org/10.1016/j.physe.2014.08.013</a>	1386-9477	2015	3.570
1 5	Influence of Zn incorporation in CdS: structural and morphological studies	A Mukherjee, M Fu, P Mitra	Journal of Physics and Chemistry of Solids	82, 50-55 <a href="https://doi.org/10.1016/j.jpcs.2015.03.009">https://doi.org/10.1016/j.jpcs.2015.03.009</a>	0022-3697	2015	3.442
1 6.	Microstructural and H <sub>2</sub> S sensitivity of CBD synthesized	A Mukherjee, M Fu, P Ghosh, P Mitra	Materials Letters	141, 39-42 <a href="https://doi.org/10.1016/j.matlet.2014.11.034">https://doi.org/10.1016/j.matlet.2014.11.034</a>	0167-577X	2015	3.024

	CdS thin film: Influence of cobalt doping						
17.	Structural and optical characteristics of SnS thin film prepared by SILAR	A Mukherjee, P Mitra	Materials Science-Poland	33(4), 847-851 10.1515/msp-2015-0118	0137-1339(print) 2083-134X(e-ISSN)	2015	0.911
18.	Characterization of tin (II) sulphide thin film synthesized by successive chemical solution deposition	A Mukherjee, P Mitra	Indian Journal of Physics	89(10), 1007-1012 <a href="https://doi.org/10.1007/s12648-015-0673-0">https://doi.org/10.1007/s12648-015-0673-0</a>	0974-9845	2015	1.947
19.	Influence of particle size on H <sub>2</sub> and H <sub>2</sub> S sensing characteristics of nanocrystalline nickel ferrite	P Ghosh, A Mukherjee, M Fu, S Chattopadhyay, P Mitra	Physica E: Low-dimensional Systems and Nanostructures	74, 570-575 <a href="https://doi.org/10.1016/j.physe.2015.08.023">https://doi.org/10.1016/j.physe.2015.08.023</a>	1386-9477	2015	3.570
20.	Synthesis of Nanocrystalline CdS by SILAR and Their Characterization	P.Mitra, Partha Protim Chandra, Ayan Mukherjee	Journal of Materials	2014, 138163 <a href="http://dx.doi.org/10.1155/2014/138163">http://dx.doi.org/10.1155/2014/138163</a>	2314-4866	2014	
21.	Preparation of Zinc Sulphide thin film by Spin Coating and their Characterization	A Mukherjee, P Mitra	Journal of Physical Science	16, 171-175	0972-8791	2012	
22.	Characterization of ZnS Thin Film Synthesized	A Mukherjee, S Chattopadhyay, P Mitra	Journal of Physical Science	20, 195-203	0972-8791	2015	

	by CBD using Zinc Acetate Precursor						
2 3.	Effect of Sn Incorporation in ZnS thin Film Synthesized by CBD	Ayan Mukherjee	Progress in Theoretical and Applied Physics	1 (2013) 11-16.	2320-3064	2013	
2 4.	Effect of annealing on structural, optical and electrical properties of SILAR synthesized CuO thin film	MR Das, A Mukherjee, P Mitra	AIP Conference Proceedings	1832(1), 080016 <a href="https://doi.org/10.1063/1.4980476">https://doi.org/10.1063/1.4980476</a>	0094-243X	2017	

#### Detail of patent :

S.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Country	Status
1.	A Device for sensing hydrogen sulfide gas at low temperature using chemical bath deposited cobalt doped Cadmium Sulfide thin film as sensing material.	PARTHA MITRA INVENTOR(S): PARTHA MITRA, AYAN MUKHERJEE, MAHIMA RANJAN DAS	2021310058 08	APPLIED	INDIA	Under Examination

#### Oral Presentation at Seminars/ Conferences :

- 1) Oral paper presentation on “ Influence of Ni doping in electrochemical performance of Cobalt Oxide” at International conference on supercapacitor and Batteries organized by Dept of Physics, IIT Kharagpur, India from 28-30 March, 2022.
- 2) Invited talk on “Supercapacitor : Future of energy storage “at national conference on Recent Trends in Physics organized by Dept. of Physics, Bankura University, WB during 17-18 February. 2020.
- 3) Oral Presentation on “Supercapacitive performance .....deposition time” at National Seminar NSCMPLA-2020 organized by Dept. of Physics, The



University of Burdwan, Burdwan, WB during 13-14 February, 2020.

- 4) Oral presentation on “Structural and Optical Characteristics of Copper doped CdS thin film prepared by CBD” at National Conference on Modern Trends in Materials Science -2015 organized by Dept. of Physics, University of North Bengal, West Bengal, India during 5-6 February, 2015.