

A Project Titled
“SPECTROSCOPY OF B MESON”

Submitted to Berhampur University

**A DISSERTATION SUBMITTED FOR THE PARTIAL FULFILMENT OF
M.SC DEGREE IN PHYSICS**



**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR
BERHAMPUR UNIVERSITY**

SUBMITTED BY:

ADITYA NARAYAN SATAPATHY

ROLL NO: PHYS-23-004

EXAM ROLL NO. -23PHYS076

REGD. NO. -10365/2019

P.G. DEPARTMENT OF PHYSICS

UNDER THE SUPERVISION OF:

MR. SANTOSH BEHERA

(LECTURER IN PHYSICS)

DECLARATION

I do hereby declare that the project work entitled "*Spectroscopy of B meson*" was carried out by me under the guidance of Mr. Santosh Behera during 4th semester session of 2023-25. No part of this work has been submitted previously to any institution for any other degree or diploma. Whenever I have used any kind of materials (data, figures and text etc.) from other sources, I have given due credit to them by citing them in the text of the project and given their details in the references.

Also, I declare that despite all efforts, if there is any error and shortcoming of this project, then I am solely responsible for that.

Aditya Narayan Satapathy

Aditya Narayan Satapathy

Roll No.: 23PHYS076

Regd. No.: 10365/2019



A Project Titled

"THIN FILM TECHNOLOGY AND NANOMATERIAL CHARACTERIZATION TECHNIQUES"

Submitted to Berhampur University

A DISSERTATION SUBMITTED FOR THE PRATIAL FULFILMENT OF
M.SC DEGREE IN PHYSICS



**GOVERNMENT SCIENCE COLLEGE , CHATRAPUR
BERHAMPUR UNIVERSITY**

SUBMITTED BY:

CHINMAYEE SAHOO

ROLL NO: PHYS-23-019

EXAM ROLL NO. -23PHYS077

REGD. NO. -20902/2023

P.G. DEPARTMENT OF PHYSICS

UNDER THE SUPERVISION OF:

MRS. ARATI DIKHIT

(LECTURER IN PHYSICS)

DECLARATION

I, Chinmayee Sahoo , hereby declare that this project entitled "THIN FILM TECHNOLOGY AND NANOMATERIAL CHARACTERIZATION TECHNIQUES " submitted to the Department of Physics, Govt. Science College, Chatrapur in partial fulfillment of the requirements for the Master degree of science is of my own and it has not been submitted previously for the award of any degree or diploma to any other institution including University or published at any time early.

DATE : 08.05.2025

PLACE :

Chinmayee Sahoo

CHINMAYEE SAHOO

ROLL NO. : PHYS-23-019

EXAM ROLL NO. : 23PHYS077



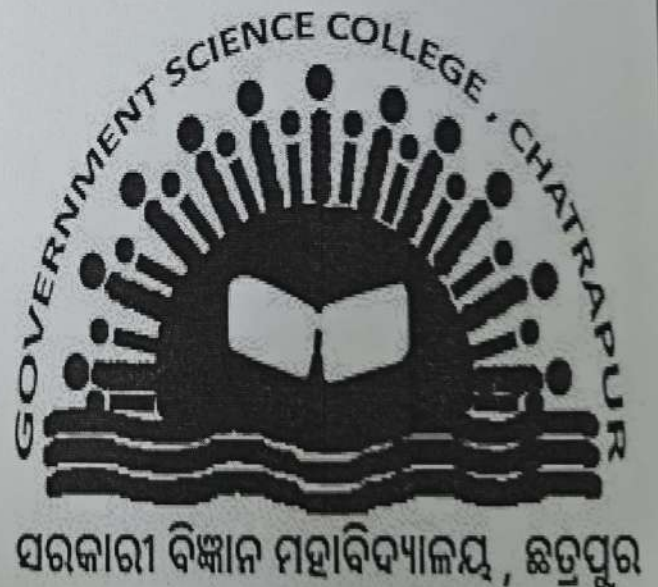
BLACK HOLE: A MYSTERY IN THE UNIVERSE

(Project report PHY-E403, 4th semester)

SUBMITTED BY: D DURGAPRASAD REDDY

ROLL NO: 23PHYS078

GUIDED BY: SRI SANTOSH BEHERA
(LECTURER IN PHYSICS)



GOVERNMENT SCIENCE COLLEGE, CHATRAPUR

DECLARATION

I do here by declare that the project work entitled "**BLACK HOLE:A MYSTERY IN THE UNIVERSE**" is the detailed review work carried out by me independently under the guidance and supervision of **sri Santosh Behera** , Lecturer in physics submitted as partial fulfillment of CE-403, 4th Semester 2025 in physics, Berhampur University, Berhampur and has not been submitted anywhere else before.

x D. Durgaprasad Reddy

D DURGAPRASAD REDDY

ROLL NO-23PHYS078

A Project Titled

"SYNTHESIS OF NANOPARTICLES BY PHYSICAL METHODS AND IT'S APPLICATIONS "

Submitted to Berhampur University

A DISSERTATION SUBMITTED FOR THE PRATIAL FULFILMENT OF
M.SC DEGREE IN PHYSICS



ସରକାରୀ ବିଜ୍ଞାନ ମହାବିଦ୍ୟାଳୟ, ଛତ୍ରପୁର

GOVERNMENT SCIENCE COLLEGE, CHATRAPUR
BERHAMPUR UNIVERSITY

SUBMITTED BY:

D JAGANNATH RAO

ROLL NO: PHYS-23-005

EXAM ROLL NO. -23PHYS079

REGD. NO. -10393/2019

P.G. DEPARTMENT OF PHYSICS

UNDER THE SUPERVISION OF:

MRS. ARATI DIKHIT

(LECTURER IN PHYSICS)

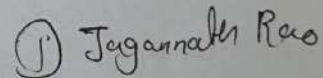


DECLARATION

I, D JAGANNATH RAO, hereby declare that this project entitled
“SYNTHESIS OF NANOPARTICLES BY PHYSICAL METHODS AND
IT'S APPLICATIONS” submitted to the Department of Physics, Govt. Science College,
Chatrapur in partial fulfillment of the requirements for the Master degree of science is of my own and
it has not been submitted previously for the award of any degree or diploma to any other institution
including University or published at any time early.

DATE :

PLACE :



D JAGANNATH RAO

ROLL NO. : PHYS-23-005

EXAM ROLL NO. : 23PHYS079

BARYON NUMBER VIOLATION

*A Dissertation Submitted
for Fulfilment of the Requirement of the Degree of Master of Science
(M.Sc.) in Physics*

Submitted by:

IPSITA PRADHAN

Roll No: 23PHYS080

REGD. No: 22057/2020

Under the Supervision of:

Sri. Santosh Behera

(Lecturer in Physics)



P.G. DEPARTMENT OF PHYSICS,

GOVERNMENT SCIENCE COLLEGE, CHATRAPUR, ODISHA

DECLARATION

I do hereby declare that the project work entitled "BARYON NUMBER VIOLATION" was carried out by me under the guidance of Mr. Santosh Behera during 4th semester session of 2023-25. No part of this work has been submitted previously to any institution for any other degree or diploma. Whenever I have used any kind of materials (data, figures and text etc.) from other sources, I have given due credit to them by citing them in the text of the project and given their details in the references.

Also, I declare that despite all efforts, if there is any error and shortcoming of this project, then I am solely responsible for that

Ipsita Pradhan
Ipsita Pradhan

Roll No.: 23PHYS080

Regd. No.: 22057/2020

QUANTUM DOT & ITS APPLICATION

(PROJECT REPORT CE-403, 4TH SEMESTER)

SUBMITTED BY - PABITRA MOHAN NAHAK

ROLL NO. - 23PHYS081

GUIDED BY - A R A T I D I K H I T



GOVERNMENT SCIENCE COLLEGE,
CHATRAPUR (GANJAM)

DECLARATION

I do here by declare that the project work "**QUANTUM DOTS & ITS APPLICATION**" is the details review work carried out by me independently under guidance and supervision of **ARATI DIKHIT**, Lecturer in Physics, submitted partial fulfilment of CE-403, 4th Semester 2025 in physics, Berhampur University, Berhampur and has not been submitted anywhere else before.

Pabitra Mohan Nahak

PABITRA MOHAN NAHAK

ROLL NO- 23 PHYS 081

RUTHERFORD GOLD FOIL EXPERIMENT

(Project Report, 4th Semester)

SUBMITTED BY- PRASANTA SETHI

EXAM ROLL NO-23PHYS082

GUIDED BY - SANTOSH BEHERA

(DEPARTMENT OF PHYSICS)



(GOVT.SCIENCE COLLEGE,CHATRAPUR, GANJAM, ODISHA)

DECLARATION

I do hereby declare that project work entitled "**RUTHERFORD GOLD FOIL EXPERIMENT**" is the detailed review work carried by me independent under the guidance and the supervision of **SANTOSH BEHERA, Department Of Physics** submitted by partial fulfillment of Project and seminar, 4th semester 2025 in physics, Berhampur University, Berhampur and has not been submitted anywhere else before.

Prasanta sethi

PRASANTA SETHI
EXAM ROLL NO - 23PHYS082

A Project Titled

"GREEN SYNTHESIS OF DYE-SENSITIZED SOLAR CELL"

Submitted to Berhampur University

**A DISSERTATION SUBMITTED FOR THE PARTIAL FULFILMENT OF
M.SC DEGREE IN PHYSICS**



**GOVERNMENT SCIENCE COLLEGE, CHATRAPUR
BERHAMPUR UNIVERSITY**

SUBMITTED BY:

PRIYADARSHINEE PATTANAİK

ROLL NO: PHYS-23-007

EXAM ROLL NO. -23PHYS083

REGD. NO. -20903/2023

P.G. DEPARTMENT OF PHYSICS

UNDER THE SUPERVISION OF:

**MRS. ARATI DIKHIT
(LECTURER IN PHYSICS)**

DECLARATION

I, Priyadarshinee Pattanaik, hereby declare that this project entitled "GREEN SYNTHESIS OF DYE-SENSITIZED SOLAR CELL" submitted to the Department of Physics, Govt. Science College, Chatrapur in partial fulfillment of the requirements for the Master degree of science is of my own and it has not been submitted previously for the award of any degree or diploma to any other institution including University or published at any time early.

DATE : 08.05.2025

PLACE :

Priyadarshinee Pattanaik

PRIYADARSHINEE PATTANAİK

ROLL NO. : PHYS-23-007

EXAM ROLL NO. : 23PHYS083



GRAPHENE: FOUNDATION OF 2D MATERIAL

*A Dissertation Submitted
for Fulfilment of the Requirement of the Degree of Master of Science
(M.Sc.) in Physics*

Submitted by:

PRIYANKA MOHANTY

Roll No: 23PHYS084

REGD. No: 20904/2023

Under the Supervision of:

Sri. Santosh Behera

(Lecturer in Physics)



P.G. DEPARTMENT OF PHYSICS,
GOVERNMENT SCIENCE COLLEGE,
CHHATRAPUR, ODISHA

DECLARATION

I do hereby declare that the project work entitled "**GRAPHENE: FOUNDATION OF 2D MATERIAL**" was carried out by me under the guidance of Mr. Santosh Behera during 4th semester session of 2023-25. No part of this work has been submitted previously to any institution for any other degree or diploma. Whenever I have used any kind of materials (data, figures and text etc.) from other sources, I have given due credit to them by citing them in the text of the project and given their details in the references.

Also, I declare that despite all efforts, if there is any error and shortcoming of this project, then I am solely responsible for that

Priyanka Mohanty
Priyanka Mohanty

Roll No.: 23PHYS084

Regd. No.: 20904/2023

RAMAN SCATTERING

(Project Report, M.Sc 4th Semester)

SUBMITTED BY- RAHUL NAYAK

EXAM ROLL NO-23PHYS085

GUIDED BY- SMT. ARATI DIKHIT

(LECTURER IN DEPARTMENT OF PHYSICS)



(GOVT. SCIENCE COLLEGE, CHATRAPUR, ODISHA)

DECLARATION

I do hereby declare that project work entitled "RAMAN SCATTERING" is the detailed review work carried by me independent under the guidance and the supervision of **ARATI DIKHIT, Department Of Physics** submitted by partial fulfilment of CE-403, M.Sc 4th Semester in Physics, Berhampur University, Berhampur and has not been submitted anywhere else before.

Rahul Nayak
RAHUL NAYAK

EXAM ROLL NO-23PHYS085

LEPTONIC DECAY OF B MESONS

*A Dissertation Submitted
for Fulfilment of the Requirement of the Degree of Master of Science
(M.Sc.) in Physics*

Submitted by:

RAMESH CHARKI

Roll No: 23PHYS086

REGD. No: 13841/2020

Under the Supervision of:

Sri. Santosh Behera

(Lecturer in Physics)



P.G. DEPARTMENT OF PHYSICS,

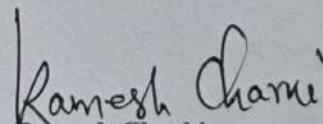
GOVERNMENT SCIENCE COLLEGE,

CHHATRAPUR, ODISHA

DECLARATION

I do hereby declare that the project work entitled "LEPTONIC DECAY OF B MESON" was carried out by me under the guidance of **Mr. Santosh Behera** during 4th semester session of 2023-25. No part of this work has been submitted previously to any institution for any other degree or diploma. Whenever I have used any kind of materials (data, figures and text etc.) from other sources, I have given due credit to them by citing them in the text of the project and given their details in the references.

Also, I declare that despite all efforts, if there is any error and shortcoming of this project, then I am solely responsible for that


Ramesh Charki

Roll No.: 23PHYS086

Regd. No.: 13841/2020

GRAVITY

A FORCE OR PHENOMENA!

SUBMITTED BY

SMRUTI CHHANDA NAYAK

ROLL NO: 23PHYS087

GOVT.SCIENCE COLLEGE CHATRAPUR

GUIDED BY

DR PRADYUMNA MADHOI





DECLARATION



I SMRUTI CHHANDA NAYAK from MSc. Final year do here by declare that the project work entitled "GRAVITY A FORCE OR PHENOMENA" is the detailed review work carried out by me independently under the guidance and supervision of Pradyumna Madhei , Head of Department of physics submitted as partial fulfilment of Elective 4th Semester 2025 in physics, Berhampur University, Berhampur and has not been submitted anywhere else Before.

Smruti chhanda Nayak

Smruti chhanda nayak
PG 2nd year
Rollno -23PHYS087
Department of physics
Govt. science college Chatrapur

A PROJECT REPORT ON

“NMR (2D)SPECTROSCOPY”

Project submitted in partial fulfillment of the
POST GRADUATE DEGREE in PHYSICS
Submitted by – **SUBHAM KUMAR SAHOO**

[M.Sc Final year]

REGD. NO- 04426/2020

COLLEGE ROLL NO- PHYS-23-11



EXAM ROLL NO-23PHYS088

Guided by –

ARATI DIKHIT

Lecturer in physics

(project supervisor)

DEPARTMENT OF PHYSICS

GOVT.SCIENCECOLLEGE,CHATRAPUR,GANJAM,ODISHA

DECLARATION

I **Subham Kumar Sahoo** from MSc. Final year do here by declare that the project work entitled “**NMR(2D) SPECTROSCOPY**” is the detailed review work carried out by me independently under the guidance and supervision of **Smt.Arati Dikhit** ,lecturer in physics submitted as partial fulfillment of Elective 4th Semester 2025 in physics, Berhampur University, Berhampur and has not been submitted anywhere else Before.

**Subham Kumar Sahoo*

Subham Kumar Sahoo

Exam roll no-23PHYS088

College roll no-PHYS-23-011