

**GROWTH AND CHARACTERIZATION OF PbS THIN  
FILMS BY CHEMICAL BATH DEPOSITION  
A PROJECT REPORT SUBMITTED TO  
SAVITRIBAI PHULE PUNE UNIVERSITY,  
PUNE**



**FOR THE DEGREE OF  
BACHELOR OF SCIENCE  
IN  
PHYSICS**

**UNDER THE FACULTY OF SCIENCE**

**BY**

**MR. FUNDE PANDURANG GAHININATH**  
*Department of Physics, Arts, Commerce and Science College, Sonai*

**UNDER THE GUIDANCE OF**

**Prof. VIRKAR AVINASH**

**DEPARTMENT OF PHYSICS,  
ARTS, COMMERCE AND SCIENCE COLLEGE, SONAI**

**MARCH-2020**



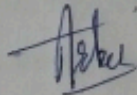
Seat No.

36100

SAVITRIBAI PHULE PUNE UNIVERSITY

**BONAFIDE CERTIFICATE**

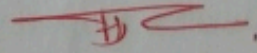
This is to certify that the work incorporated in the project report entitled "GROWTH AND CHARACTERIZATION OF PbS THIN FILMS BY CHEMICAL BATH DEPOSITION" submitted to Savitribai Phule Pune University, Pune, is benefited work of **MR. FUNDE PANDURANG GAHININATH** of B.Sc. (Physics) during the academic year 2019-20, who carried out the project work under my supervision



**Prof. VIRKAR AVINASH**

**Guide**

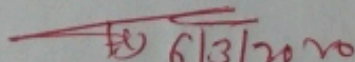
Department of Physics



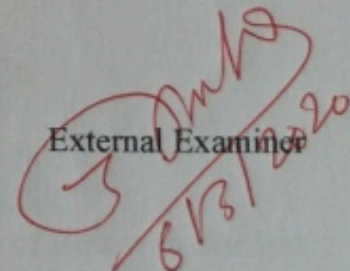
**Dr. Sadekar H.K.**

**Head**

Department of Physics



6/3/2020  
Internal Examiner



6/3/2020  
External Examiner



## ACKNOWLEDGEMENT

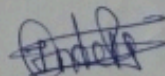
I wish to thank the Principal **Dr. Shankar Laware** of my college for permitting me to use all the facilities available in the institution for my project work. I would also like to thank the Head of the Physics Department **Dr. Sadekar H.K.**, the teaching faculty and all the non-teaching staff of my college for their support in completing the work successfully.

I am grateful to my Guide **Prof. VIRKAR AVINASH.**, for his encouragement, guidance and supervision of my project work during the year. I must acknowledge the financial support given to this project by my parent without which it would have been difficult to complete the work in time.

My classmates have been of great help to me in the project work. My ideas were shaped and refined progressively through my discussions with them from time to time. I cannot miss to thank them all. There were some persons like **Prof. Bhakare C.H.**, **Prof. Dushing Sawti E.** **Shri. Telore S.S.** who were directly but indirectly involved in my preparatory/practical work. I appreciate their contribution and thank them too.

Place: Sonai

Date:



Signature of Research Student

**Mr. Funde Pandurang.**  
(B.Sc. Physics)