

# Andhra Christian college

(Day, Evening and PG)

## NOTICE

Date: 14-09-2022

This is to inform you that there will be a seminar on “**LOW TEMPERATUR PHYSICS**” tomorrow, i.e., on 15-09-2022 to be conducted by the department of physics, at 11 AM. P. M. Prasad, Lecturer Department of Physics, Hindu College, Guntur Will be address the seminar. All the students of III B.Sc. are instructed to attend the programme without fail.



Copy to:

1. The coordinator, IQAC, Andhra Christian College
2. The office manager, Andhra Christian College

A handwritten signature in green ink, appearing to be "ndra", written over the printed name of the Principal.

Principal

**PRINCIPAL**  
**ANDHRA CHRISTIAN COLLEGE**  
(Day, Evening & P.G)  
**GUNTUR**

# Andhra Christian College::Guntur

## Department of Physics

### Seminar Report on "Low Temperature Physics"

**Organized by:** Department of Physics, Andhra Christian College, Guntur

**Date:** 15th September 2022

**Time:** 11:00 AM

**Venue:** Department of Physics, Andhra Christian College, Guntur

**Resource Person:** Mr. P. M. Prasad, Faculty of Physics, Hindu College, Guntur

**Participants:** B.Sc. students, Faculty: Dr. M. Ratna Raju (Head), Dr. P. M. Vinaya Teja (Senior Lecturer), Mr. V. Ravi Kumar (Lecturer), Mr. D. Srinivasa Rao (Lecturer)

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#### 1. Introduction

The Department of Physics, Andhra Christian College, Guntur, organized a seminar on "Low Temperature Physics" on 15th September 2022. The seminar aimed to provide B.Sc. students with an understanding of the principles, phenomena, and applications associated with low-temperature physics. The session was led by Mr. P. M. Prasad, a knowledgeable Faculty of Physics from Hindu College, Guntur, who brought significant expertise to the topic.

#### 2. Objectives of the Seminar

The seminar had the following key objectives:

- **To introduce the concepts of low-temperature physics:** The seminar aimed to explain the fundamental principles of low-temperature physics, including the behaviour of matter at temperatures close to absolute zero.
- **To explore phenomena observed at low temperatures:** Participants were introduced to various phenomena that occur at low temperatures, such as superconductivity, superfluidity, and Bose-Einstein condensation.
- **To discuss the techniques used to achieve low temperatures:** The seminar aimed to familiarize students with the methods and technologies used to achieve and measure low temperatures, including cryogenics and refrigeration techniques.
- **To highlight the applications of low-temperature physics:** The seminar sought to demonstrate the practical applications of low-temperature physics in various fields, including quantum computing, magnetic resonance imaging (MRI), and space exploration.
- **To inspire further academic research and exploration:** The seminar aimed to encourage students to pursue further studies and research in low-temperature physics, fostering a deeper interest in the subject.

### 3. Summary of the Seminar

The seminar began with an introduction by Dr. M. Ratna Raju, Head of the Department of Physics, who welcomed the resource person, Mr. P. M. Prasad, and the participants, including the faculty members Dr. P. M. Vinaya Teja, Mr. V. Ravi Kumar, and Mr. D. Srinivasa Rao. Mr. Prasad commenced the session with a comprehensive overview of low-temperature physics, starting with an explanation of what low temperatures are and the significance of absolute zero.

Mr. Prasad delved into the unique behavior of matter at extremely low temperatures, discussing phenomena such as superconductivity, where materials exhibit zero electrical resistance, and superfluidity, where liquids flow without viscosity. He also touched on Bose-Einstein condensation, a state of matter that occurs at temperatures close to absolute zero, where particles occupy the same quantum state.

The seminar also covered the technological aspects of low-temperature physics, with Mr. Prasad explaining the various methods used to achieve low temperatures, including the use of liquid helium and advanced cryogenic systems. He provided insights into the challenges and innovations in the field of cryogenics and how these technologies are critical for scientific research and industrial applications.

One of the key highlights of the seminar was the discussion on the practical applications of low-temperature physics. Mr. Prasad illustrated how this field contributes to advancements in quantum computing, where qubits operate at near-zero temperatures to minimize decoherence. He also discussed the role of low-temperature physics in medical technologies, such as MRI, and its importance in space missions, where spacecraft components must operate in extremely cold environments.

Throughout the seminar, students and faculty engaged actively in discussions, with Mr. Prasad addressing questions and providing clarifications on complex topics. The interactive nature of the seminar helped to create a dynamic learning environment.

### 4. Outcomes of the Seminar

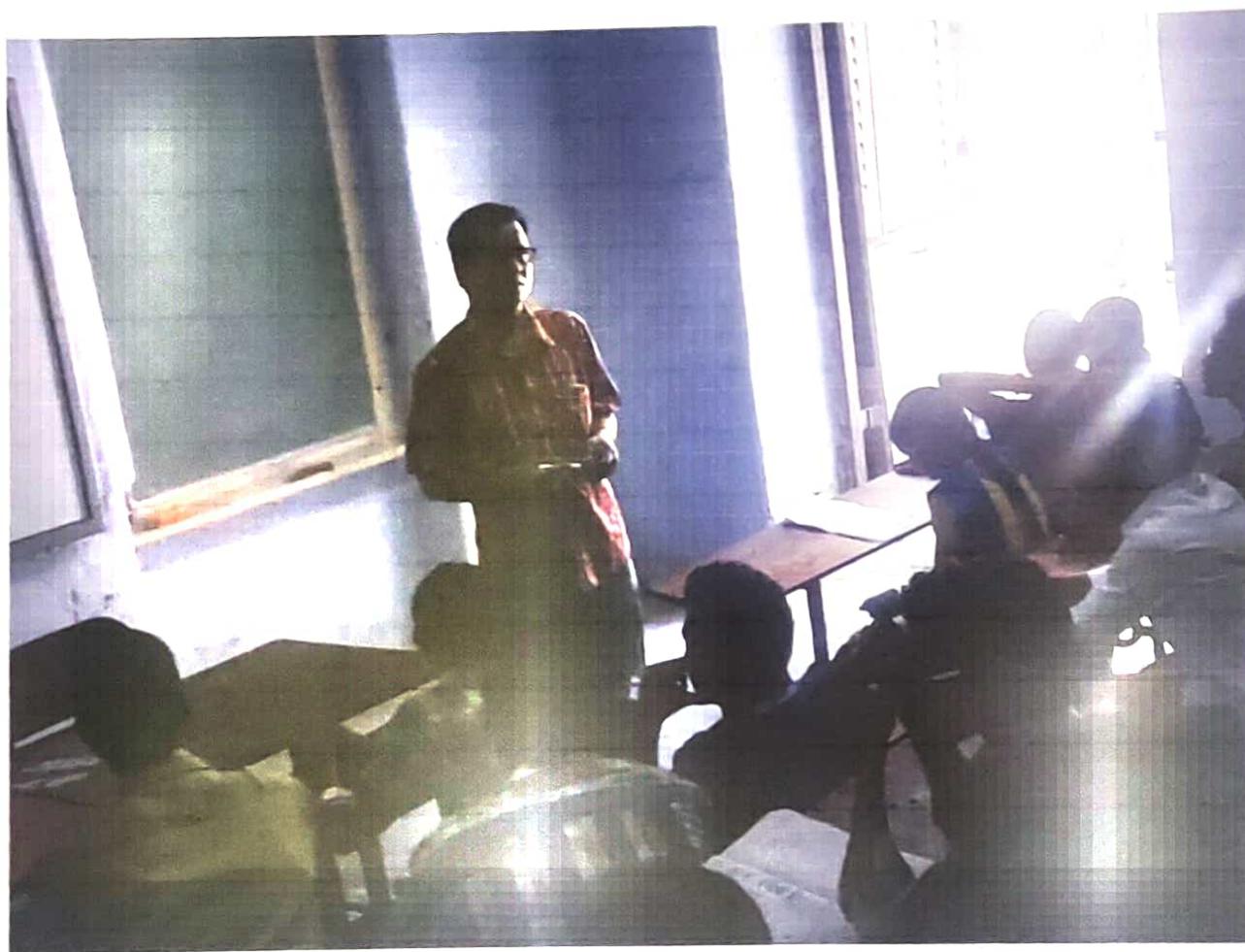
The seminar successfully met its objectives, resulting in the following outcomes:

- **Enhanced understanding of low-temperature physics:** Participants gained a solid understanding of the principles and phenomena associated with low-temperature physics, which is essential for their academic development in physics.
- **Awareness of advanced technologies:** Students were introduced to the cutting-edge technologies used to achieve and utilize low temperatures, broadening their knowledge of applied physics.
- **Increased interest in research opportunities:** The seminar sparked curiosity among students, encouraging them to explore research opportunities in low-temperature physics and related fields.
- **Improved faculty-student interaction:** The seminar facilitated closer interaction between students and faculty members, fostering a collaborative academic environment that supports inquiry and learning.

- **Recognition of practical applications:** Students became more aware of the real-world applications of low-temperature physics, helping them understand the relevance of their studies to various scientific and industrial sectors.

## 5. Conclusion

The seminar on "Low Temperature Physics" organized by the Department of Physics, Andhra Christian College, Guntur, was a highly informative and successful event. Mr. P. M. Prasad delivered an engaging presentation that effectively conveyed complex concepts in an accessible manner. The seminar achieved its objectives, providing participants with valuable insights and knowledge that will inspire further academic inquiry and exploration in the fascinating field of low-temperature physics.



# Andhra Christian College, Guntur

## Department of Physics

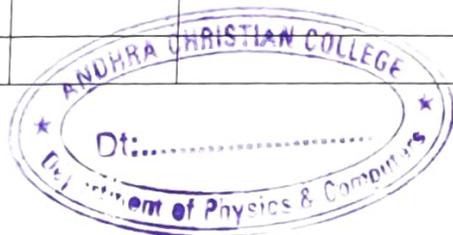
List of Students Attended for SEMINAR CLASS

TOPIC: Low Temperature Physics

Date: 15.09.2022

Class: III<sup>rd</sup> B.Sc

| S. No. | Class No | Name of the Students | Signature             |
|--------|----------|----------------------|-----------------------|
| 1.     | 601      | B. Shyam Kumar       | B. Shyam Kumar        |
| 2.     | 602      | B. Naveen Kumar      | B. Naveen Kumar       |
| 3.     | 603      | G. Naga Raju         | G. Naga Raju          |
| 4.     | 604      | B. Naresh            | B. Naresh             |
| 5.     | 605      | M. Mahendra Babu     | M. Mahendra Babu      |
| 6.     | 606      | N. Gopi Naik         | N. Gopi Naik          |
| 7.     | 608      | N. Prem Babu         | N. Prem Babu          |
| 8.     | 609      | S. Revanth Siva      | S. Revanth Siva       |
| 9.     | 610      | M. Nageswara Rao     | M. Nageswara Rao      |
| 10.    | 611      | Nithin Chandra Reddy | Nithin Chandra Reddy. |
| 11.    | 613      | SK. Abid Hussain     | SK. Abid Hussain      |
| 12.    | 614      | B. Vijaya Varma      | B. Vijaya Varma       |
| 13.    | 618      | K. Murali            | K. Murali             |
| 14.    | 620      | M. Bharath Naik      | M. Bharath Naik.      |
| 15.    | 621      | SK. Meenavali        | SK. Meenavali         |
| 16.    | 622      | T. Jagadeesh         | T. Jagadeesh          |
| 17.    | 623      | K. Chaitanya         | K. Chaitanya          |
| 18.    | 624      | P. Raju              | P. Raju               |
| 19.    | 625      | Y. Prem Kumar        | Y. Prem Kumar         |
| 20.    | 627      | R. Ganesh            | R. Ganesh             |
| 21.    | 628      | T. Anil              | T. Anil               |
| 22.    | 1403     | G. Kinsingh          | G. Kinsingh           |
| 23.    | 1404     | M. Koteswar Rao      | M. Koteswar Rao       |
| 24.    | 1411     | S. Santhosh Kumar    | S. Santhosh Kumar     |
| 25.    | 1415     | N. Maheswar Reddy    | N. Maheswar Reddy     |
| 26.    | 1417     | K. Vyshnavi          | K. Vyshnavi           |
| 27.    | 1420     | G. Srinu             | G. Srinu              |
| 28.    |          |                      |                       |
| 29.    |          |                      |                       |
| 30.    |          |                      |                       |



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