

  
**GOPALPUR COLLEGE GOPALPUR, BALASORE**  
**Department of Physics Seminar Dated: 16.11.2016**

Title : Thermocouple  
Resource Person : Mr. Shridhar Behera

**Synopsis**

Thermocouple is a device which converts thermal energy into electrical Energy. A thermocouple comprised of at least two metals joined together to form two junctions. One is connected to the body whose temperature is to be measured. This is hot or measuring junction. The other junction is connected to the body of known temperature, this is cold or reference junction. Therefore thermocouple measures unknown temperature of the reference to the known temperature of the other body.

**Working Principle**

It mainly depends on three effects namely Seebak, Pettier, and Thompson.

**Advantages**

- ❖ Accuracy is high.
- ❖ Thermal reaction is fast.
- ❖ Operating range of temperature is wide
- ❖ Cost is low and extremely consistant.

**Application**

- ❖ These are used as the temperature sensors in thermostats in offices, homes and business.
- ❖ These are used in industries for monitoring temperature of metals in iron, aluminum and metal.

The seminar is attended by 16 students covering +3 1<sup>st</sup> year physics honours students.



*Snehalata Tripathy*

Signature of the  
Organizing Secretary

  
PRINCIPAL  
GOPALPUR COLLEGE  
GOPALPUR, BALASORE

Gopalpur College, Gopalpur, Balasore



**GOPALPUR COLLEGE GOPALPUR, BALASORE**  
**Department of Physics Seminar Dated: 28.10.2017**

Title : CRO Date : 28.10.2017  
Resource Person : B.C. Prusty

**Synopsis**

The cathode Ray oscilloscope is an electric test instrument. It is used to obtain waveforms when different input signals are given. The oscilloscope observes the change in electrical signals overtime, thus the voltage and time describe a state and it is continuously graphed beside a scale. By seeing the wave form, we can analyse some properties like amplitude, frequency, rise time, distortion, time interval etc.

**Working**

The working of CRO is based different system like vertical deflection system, horizontal deflection system.

**Application**

It is used to measurement of voltage and current.

**Uses**

It can display different types of wave forms.

It can measure short time interval.

The seminar is attended by 30 students covering +3 1<sup>st</sup> year, 2<sup>nd</sup> year Physics Honours student.

*Snehalata Tripathy*  
Signature of the  
Organizing Secretary

  
PRINCIPAL  
GOPALPUR COLLEGE  
GOPALPUR, BALASORE  
Principal

Gopalpur College, Gopalpur, Balasore



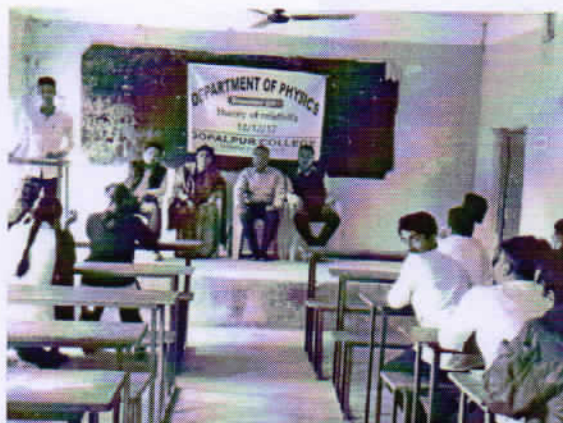
## GOPALPUR COLLEGE GOPALPUR, BALASORE

Department of Physics Seminar Dated: 18.12.2017

Title : Theorem Relativity  
Resource Person : Mr. Chandan Kumar Nayak

### Synopsis

The theory of relativity usually encompasses two interrelated theories by Albert Einstein special theory of relativity and general theory of relativity. Special theory of relativity applies to all physical phenomena in the absence of gravity. General relativity explains the law of Gravitation and its relation to the forces of nature. It is applied to the cosmological and astrological including astronomy.



### Advantages

The theory explains the behavior of objects in space and time and it can be used to predict everything from the existence of blank holes to light belong due to gravity to the behavior of the planet mercury in its orbit.

The seminar is attended by 28 students covering +3 1<sup>st</sup> year, 2<sup>nd</sup> year Physics Honours student.

*Snehalata Tripathy*

Signature of the  
Organizing Secretary

PRINCIPAL  
GOPALPUR COLLEGE  
GOPALPUR, BALASORE

Principal  
Gopalpur College, Gopalpur, Balasore



**GOPALPUR COLLEGE GOPALPUR, BALASORE**  
**Department of Physics Seminar Dated: 27.12.2018**

**Title** : Space wave Propagation  
**Resource Person** : Amar Ballav Panda

**Synopsis**

Space wave propagation is defined for the radio waves that occur within the 20 km of the atmosphere that troposphere comprising of a direct and reflected waves. These wave also known as tropospheric propagation as they can travel propagation as they can travel directly from the earth's surface. It is also known as line of sight propagation as the signals are sent in a straight line from the transmitter to the receiver.

**Application**

- ✚ It is used in a line of sight communication and satellite communication.
- ✚ It is used in a Radar communication.
- ✚ It is used in a Microwave lining.


**Limitations**

These waves are affected by the curvature of the earth.

The seminar is attended by 41 students covering +3 1<sup>st</sup> year, 2<sup>nd</sup> year and 3<sup>rd</sup> year Physics Honours student.

*Suehalata Tripathy*

**Signature of the  
Organizing Secretary**

  
**PRINCIPAL  
GOPALPUR COLLEGE  
GOPALPUR, BALASORE**  
Principal

**Gopalpur College, Gopalpur, Balasore**



**GOPALPUR COLLEGE GOPALPUR, BALASORE**  
**Department of Physics Seminar Dated: 12.02.2019**

**Title** : Laser and its application  
**Resource Person** : Pravat Ranjan Das

**Synopsis**

Laser is a device that amplifies or increases the intensity of light and produces highly directional light. Laser not only amplifies or increases intensity of light but also generates the light. Laser emits light through a process called stimulated emission of Radiation which amplifies or increases the intensity of light. Some laser generated visible light but others generate ultraviolet or infrared rays which are invisible.

**Principle**

In laser photons are interacted in three ways when atoms that absorption of radiation, spontaneous emission and stimulated emission.

**Types of Laser**

Laser are classified into 4 types

1. Solid state laser.
2. Gas laser
3. Liquid laser
4. Semiconductor laser.

**Application**

- ❖ Laser in Medicine
- ❖ Laser in communications
- ❖ Laser in Industries.



The seminar is attended by 39 students covering +3 1<sup>st</sup> year, 2<sup>nd</sup> year Physics Honours student.

*Snehalata Tripathy*

Signature of the  
Organizing Secretary

  
**PRINCIPAL**  
**GOPALPUR COLLEGE**  
**GOPALPUR, BALASORE**  
Principal  
Gopalpur College, Gopalpur, Balasore



## DEPARTMENT OF PHYSICS

**Title** : Gravity waves  
**Dated** : 07.11.2019  
**Resource Person** : Rupak Kumar Behera

### Synopsis

Gravitational waves will not allow us to test the predictions of General relativity in regions of strong gravity but will also serve as a tool to expand our understanding of the universe. Direct observations of Gravitational waves are being pursued by an international network of advanced laser inter-perometric detectors.



Gravitational waves are disturbances in the curvature of space time generated by accelerated masses that propagate as waves outward from their surface at the speed of light.

The seminar is attended by 35 students covering +3 1<sup>st</sup> year, 2<sup>nd</sup> year Physics Honours student.

*Snehalata Tripathy*

**Signature of the  
Organizing Secretary**

  
**PRINCIPAL**  
**Principal**  
**GOPALPUR COLLEGE**  
Gopalpur College, Gopalpur, Balasore



## DEPARTMENT OF PHYSICS

**Title : Cyclotron**  
**Resource Person : Amar Ballav Panda**  
**Dated: 10.01.2020**

### Synopsis

Cyclotron is a device used to accelerate charged particles to high energies. It works on the principle moving normal to a magnetic field experiences magnetic force due which the particle moves in a circular.

### Limitations

- ❖ Cyclotron cannot accelerate uncharged particles like neutrons.
- ❖ It cannot accelerate electrons because of its small mass.
- ❖ It cannot accelerate positively charged particle with large mass due to relativistic effect.
- ❖ It is suitable for accelerating heavy charged particle.
- ❖ It is not suited to very high K.E.




### Uses

- ✦ The high energy particles produced in a cyclotron are used to bombard nuclei and study the resulting nuclear reaction and investigate nuclear.
- ✦ It is used to implant ions into solids and modify their properties or even synthesis new materials.

The seminar is attended by 38 students covering +3 1<sup>st</sup> year, 2<sup>nd</sup> year Physics Honours student.

*Snehalata Tripathy*

Signature of the  
Organizing Secretary

  
PRINCIPAL  
GOPALPUR COLLEGE  
Gopalpur College, Gopalpur, Balasore