

**Department of Mechanical Engineering  
Academic year 2022-23 (EVEN)  
Internal staff seminar Report**

Date & time : 14.03.2023 & 12.30 p.m  
 Venue : Department Smart Classroom  
 Topic : Seminar on "Magnetic Properties of Polymers"  
 Resource person : Mr.D.Balaji ,AP /Mechanical



**Snapshots of the session**

Internal seminar on Magnetic Properties of Polymers has been delivered by Mr.D.Balaji, Assistant Professor, and Department of Mechanical Engineering for the staff members of Mechanical Engineering on 14/03/2023 at 12.30 p.m.

Here few properties are discussed:

In magnetic Property 1: Intensity of magnetization

Electrons move around the nucleus, and these electrons possess magnetic properties. The external magnetic field creates an impact on the materials. A material held in an external magnetic field will have its magnetic moments aligned in a specific direction. The result is a non-zero dipole moment. Magnetic flux or intensity per unit volume is defined as net dipole moment per unit volume.

Property 2: Magnetic Field (H) or Magnetic intensity

The intensity in the magnetic field is produced by the electric current flowing through a solenoid. Magnetic property is caused as a result of the external magnetic field.

Property 3: Magnetic susceptibility

An intensified magnetization of material occurs directly proportional to the magnetic field intensity for a small magnetizing field. A material with a small magnetizing field acquires a greater degree of magnetization as a direct result of the intensity of the magnetic field. The intensity of magnetization is represented as (I), and material directly proportional to the magnetic field is represented as (H) and it can be represent as

$$I \propto H$$

#### Property 4: Retentivity

Magnetism can be retained or resisted by materials because of their retentivity. It is known as retentivity when a material can retain or resist magnetization.

#### Chapters Discussed:

- Carbon Fiber
- Carbon Polymers
- Mechanical Strength
- Mechanical Property
- Epoxy Strength
- Polymer Matrix

#### Outcomes:

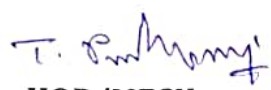
Upon listing of this seminar the participants can able to

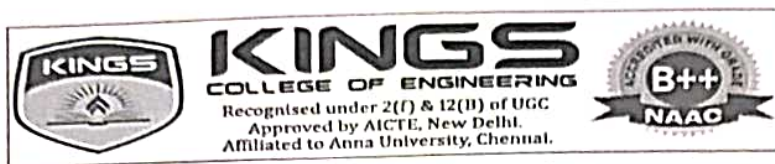
- Understand the different polymer composites.
- Understand the different properties polymer materials.

#### References:

1. Shirakawa, H., Louis, J., Macdiarmid, A.G., Chiang, C.K., Heeger, A.J.: Synthesis of electrically conducting organic polymers: halogen derivatives of polyacetylene, (CH)<sub>x</sub>. J. Chem. Soc. Chem. Comm. 16, 578-580 (1977) 2016
2. Chiang, C.K., et al.: Electrical conductivity in doped polyacetylene. Phys. Rev. Lett. 39, 1098-1101 (1977)
3. Fukutome, H., Takahashi, A., Ozaki, M.: Design of conjugated polymers with polaronic ferromagnetism. Chem. Phys. Lett. 133(1), 34-38 (1987)

  
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HOD/MECH 15/3/23



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**Internal staff seminar attendance**

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Sno	Staff name	Signature
1	Dr.T.Pushparaj	
2	Dr.P.P.Shantharaman	
3	R.Shankar	
4	H.Agilan	CL
5	N.Magesh	
6	M.Melwin Jagatheesh Sridhar	
7	S. Sabanayagam	
8	M.Sakthivel	
9	S.Desikan	CL
10	S.Nelson Raja	
11	R.Rajadurai	
12	D.Balaji	
13	S.Balaganesh	
14	Mr.M.Vivekananthan	

**Internal staff seminar feedback summary:**

S.no	Description	Good	Fair	Poor
1	Content of the speech	9	3	-
2	Voice of the speaker	9	2	1
3	Overall feedback	8	4	-

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HOD/MECH 14/3/23