

**Webinar on
“Scope for Research in Opto Mechatronics”**

Presented by

Mr. Saran Kumar

Research Scholar, IIT Madras

On 3rd March 2022 5.00 pm

Organised by

Society of Mechanical Engineers

Department of Mechanical Engineering

Coordinator:

Dr. S. Jeavudeen, Assistant Professor

SME Coordinator:

Dr. A. Arockia Julias, Assistant Professor

Conveners:

Dr. H. Siddhi Jailani, Professor & Head

Department of Mechanical Engineering

Dr. S. Rasool Mohideen, Professor & Dean

School of Mechanical Sciences

Speaker:

Mr. Saran Kumar,

Research Scholar,

Opto Mechatronics Lab

IIT Madras

Date	03.03.2022
No. of Participants	25
Nature of participants	Students & Faculty Members

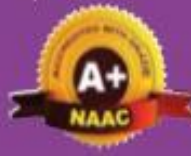
PREAMBLE

The webinar on “**Scope for Research in Opto Mechatronics**” was organized by the Society of Mechanical Engineers, Department of Mechanical Engineering. The presentation was delivered by Mr. Saran Kumar, Research Scholar, Opto Mechatronics Lab, IIT Madras. The event was coordinated by Dr. S. Jeavudeen.

The webinar offered awareness to the undergraduate students about opto Mechatronics. A brief introduction to the field of Opto Mechatronics that deals with the integration of optical components in Mechatronic systems was offered to the students. Optical sensors are used as measuring devices to control mechatronic systems. He touched upon the applications of these equipment's and its research potential.

He pointed out few success stories of research scholars and emphasized the benefits of doing research in eminent institutions. He also insisted the students to prepare for GATE Exams and aim for doing higher studies and collaborate with IIT, NITs for Research and utilize the facilities available there.

"In the Name of Allah, The Most Beneficent, The Most Merciful"



B.S. Abdur Rahman
Crescent

Institute of Science & Technology
Deemed to be University u/s 3 of the UGC Act, 1956
GST Road, Vandalur, Chennai 600 048

WEBINAR
on

SCOPE FOR RESEARCH IN OPTO MECHATRONICS

March
03
2022



5.00
PM



Organized by

**Society of Mechanical Engineers
Department of Mechanical Engineering**

K. SARANKUMAR

Research Scholar

Opto Mechatronics Lab, IIT Madras.



Who can participate?

Pre-final and final year students from School of Mechanical Sciences

JOIN US NOW!

<https://meet.google.com/fog-efmu-wwf>

Coordinator

Dr. S. Jeavudeen, Asst. Prof.

SME Coordinator

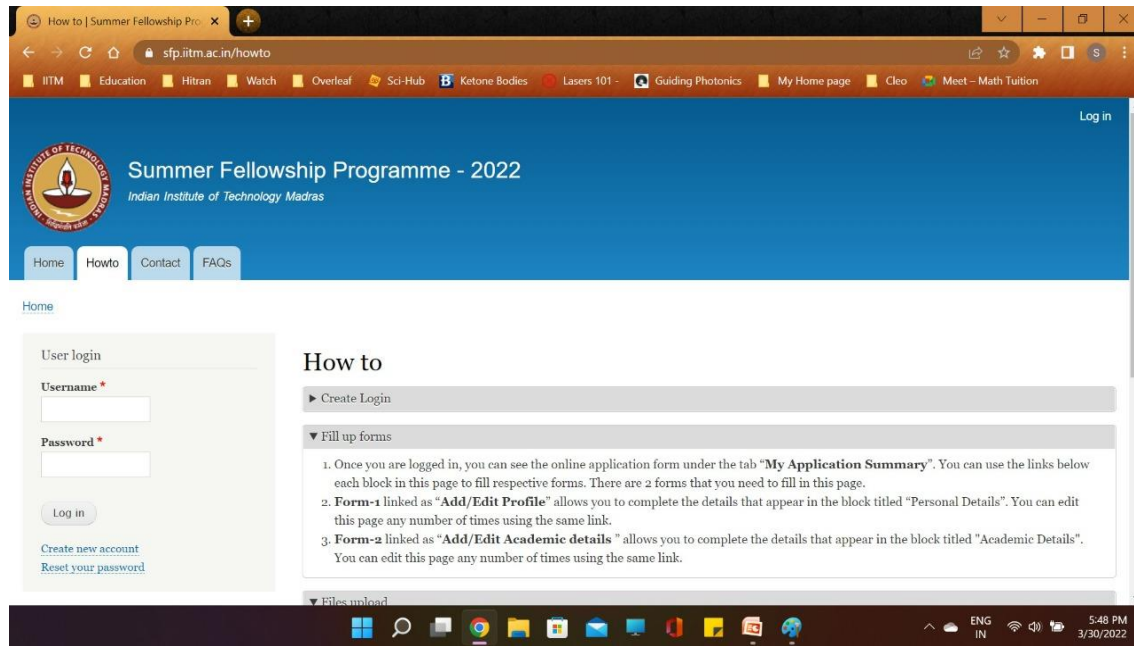
Dr. A. Arockia Julias, Asst. Prof.

Conveners

Dr. H. Siddhi Jailani, HOD/ Mech.

Dr. S. Rasool Mohideen, DEAN, SMS

Screen shot taken during presentation:



PA and QEPA Spectroscopy

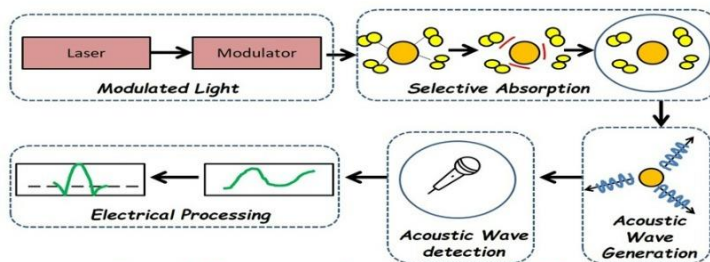


Figure 4: Photoacoustic spectroscopy (PAS)

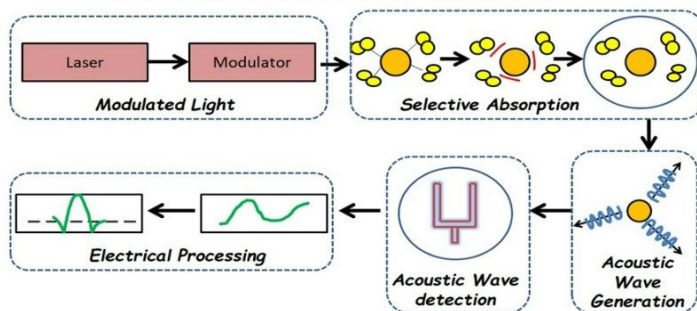


Figure 5: Quartz Enhanced Photoacoustic spectroscopy (QEPAS)

➤ The Photoacoustic (PA) [2] effect can be divided into three steps:

1. Heat release in the sample material due to optical absorption.
2. Acoustic and thermal wave generation in sample.
3. Detection of the PA signal in a PA detector.

➤ QEPAS sensor [3] has the merits of high sensitivity ranging from (ppm-ppt) level, low cost, a large dynamic range and compactness.

² A. G. Bell, "On the production and reproduction of sound by light," in Proc. Am. Assoc. Adv. Sci., vol. 29, pp. 115–136, 1881.

³ A. A. Kosterev, Y. A. Bakhrin, R. F. Curl, and F. K. Tittel, "Quartz-enhanced photoacoustic spectroscopy," Optics letters, vol. 27, no. 21, pp. 1902–1904, 2002

Attendees

