



# Indian Institute of Information Technology Allahabad

organizes

## Faculty Development Program

on

## Fundamentals and Applications of Photonic Crystals and Metamaterials

(4<sup>th</sup> - 8<sup>th</sup> October 2021)

under

AICTE Training and Learning (ATAL) Academy, New Delhi, India

**Online – Inaugural – Session**

**Minute – to - Minute Program**

Date: 4<sup>th</sup> October 2021 (Monday)

Sn.	Time	Event
1.	09:15 AM	Inviting and connecting all the guests and participants (online through Gmeet)
2.	09:20 AM	Virtual Arrival of Honorable Chief Guest and Dignitaries
3.	09:25 AM	Introduction and welcome address by Course Coordinator Dr Akhilesh Tiwari
4.	09:30 AM	Address By HoD (AS) Dr Ratan K Saha
5.	09:35 AM	Address By Guest of Honour-1 & Dean (A&R), Prof T Lahiri
6.	09:40 AM	Address by Guest of Honour-2 Registrar, IIIT-A, Prof Vijayshri Tewari
7.	09:45 AM	Address by Chief Guest and Hon'ble Director, IIIT-A, Prof P Nagabhushan
8.	10:58 AM	Vote of Thanks - Dr Pramod Kumar
9.	10.00 AM	Break...(The first talk will start at 10:30 AM)

# Fundamentals and Applications of Photonic Crystals and Metamaterials

## FDP – SCHEDULE

04-08 October' 2021

Date & Day	Session - I (10:00 AM to 11:30 AM)	(11:30 AM - 11:45 AM)	Session - II (11:45 AM to 1:15 PM)	1.15 PM to 3:00 PM	Session - III (3:00 PM to 4:30 PM)
04/10/2021 (Monday)	<b>Inaugural Session &amp; Talk - 1</b> (09.15-10:30 AM & 10:30 AM to 12.00 PM) <b>Dr Akhilesh Tiwari, IIIT-A</b> Introduction to the fundamentals of Photonic Crystals and Metamaterials	12:00-12:15	<b>Talk - 2</b> (12.15 PM to 01.45 PM) <b>Prof J Ramkumar, IIT-Kanpur</b> Nuances in the fabrication of metamaterial structures	1:45-3:00	<b>Talk-3</b> <b>Dr Pramod Kumar, IIIT-A</b> Topological insulator and its applications
05/10/2021 (Tuesday)	<b>Talk-4</b> <b>Dr Ambesh Dixit, IIT Jodhpur</b> Optical Spectroscopy: A tool for Material Scientists	Tea Break	<b>Talk - 5</b> <b>Prof S Anantha Ramakrishna, IIT Kanpur &amp; Director, CSIR-CSIO Chandigarh</b>	Lunch Break	<b>Talk -6</b> <b>Prof R K Sinha, DTU</b> Zero Index Metamaterials: Physics and Applications
06/10/2021 (Wednesday)	<b>Talk - 7</b> <b>Dr Satish K Singh, IIIT-A</b> Fundamental of Deep Learning techniques in Materials Informatics		<b>Talk - 8</b> <b>Dr Rajan Jha, IIT Bhubaneswar</b> Photonic Crystal Fiber-based Interferometric system: Lab to Land		<b>Talk - 9</b> Session on Yoga and Meditation <b>Payal Dave, ON, Canada</b> Achieving Mindfulness through Yoga
07/10/2021 (Thursday)	<b>Talk - 10</b> <b>Prof K V Srivastava, IIT Kanpur</b> Application of Metamaterials in Microwave Absorbers for Stealth Applications		<b>Talk - 11</b> <b>Prof Shekhar Verma, IIIT A</b> Deep Learning for Photonic Structure Design		<b>Talk - 12</b> <b>Dr Rajat K Singh, IIIT A</b> Photonic Networks
08/10/2021 (Friday)	<b>Talk -13</b> <b>Dr Sanjay Singh, IIT BHU</b> Reversible Adiabatic Temperature Change in Metamagnetic Shape Memory Heusler Alloys: Effect of Structural Compatibility		<b>Talk - 14</b> <b>Hands On Session</b> Practical Session on Photonic Crystal Modelling		<b>Evaluation [Online Mode] &amp; Feedback Valedictory</b>

## **Important Instructions:**

A test will be conducted (online) **time to time at the end of the day** or last day and those who score more than 60% will be termed as successful candidates. Those who have **attendance 80% or more** and also **score more than 60% in the test** will be issued a **digital certificate**.

- Talk - 1** - Dr Akhilesh Tiwari, IIIT  
Introduction to the fundamentals of Photonic Crystals and Metamaterials
- Talk - 2** - Prof Ram Kumar, IIT Kanpur  
Nuances in the fabrication of metamaterial structures
- Talk - 3** - Dr Pramod Kumar, IIIT A  
Topological insulator and its applications
- Talk - 4** - Dr Ambesh Dixit, IIT Jodhpur  
Optical Spectroscopy: A tool for Materials Scientists
- Talk - 5** - Prof Anantha RamaKrishnan, Director, CSIR-CSIO Chandigarh
- Talk - 6** - Yoga Session (Payal Dave, ON, Canada)
- Talk - 7** - Dr Satish Kumar Singh, IIIT A  
Fundamental of Deep Learning techniques in Materials Informatics
- Talk - 8** - Dr Rajan Jha, IIT Bhubneshwar  
Photonics Crystal Fiber-based Interferometric system: Lab to Land.
- Talk - 9** - Prof. R K Sinha, DTU  
(Zero Index Metamaterials: Physics and Applications)
- Talk - 10** - Prof. K V Srivastava, IIT Kanpur  
Application of Metamaterials in Microwave Absorbers for Stealth Applications
- Talk - 11** - Prof Shekhar Verma, IIIT A  
Deep Learning for Photonic Structure Design
- Talk - 12** - Dr Rajat Kumar Singh, IIIT A  
Photonic Networks
- Talk - 13** - Dr Sanjay Singh, IIT BHU  
Reversible Adiabatic Temperature Change in Metamagnetic Shape Memory Heusler Alloys: Effect of Structural Compatibility
- Talk - 14** - **Hands On Session**  
Practical Session on Photonic Crystal Modelling

### ***Course Coordinator:***

**Dr. Akhilesh Tiwari**

***Associate Professor, Department of Applied Sciences, IIIT Allahabad, Prayagraj***

***+ 0532-292-2244, +91-9450141862***

***[atiwari@iiita.ac.in](mailto:atiwari@iiita.ac.in)***

### ***Organizing members:***

***Ankit Singh – 7905836136***

***Sanjay Sharma – 8285086750***

## INVITED SPEAKERS



*Prof. S. Anantha Ramakrishna*  
Director, CSIR-CSIO, Chandigarh, on  
lien - Professor, IIT Kanpur



*Prof. Kumar Vaibhav Srivastava*  
IIT Kanpur



*Prof. J. Ramkumar*  
IIT Kanpur



*Dr. Rajan Jha*  
IIT Bhubaneswar



*Prof. R. K. Sinha*  
Former Director, CSIR-CSIO,  
Chandigarh, DTU, New Delhi



*Prof. Shekhar Verma*  
IIIT Allahabad



*Dr. Rajat Kumar Singh*  
IIIT Allahabad



*Dr. Sanjay Singh*  
IIT BHU



*Dr. Ambesh Dixit*  
IIT Jodhpur



*Dr. Satish Kumar Singh*  
IIIT Allahabad



*Dr. Pramod Kumar*  
IIIT Allahabad



*Payal Dave*  
Yoga & Meditation Expert, ON Canada