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# Seminar

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## Institute for Plasma Research

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**Title :** Development of Nanostructured Metal Oxides-Carbon Composites for Rechargeable Ion Battery

**Speaker:** Dr. Pravin Dwivedi  
IIT, Delhi

**Date :** 31st March 2021 (Wednesday)

**Time :** 03:30 PM

**Venue :** Online - Join the talk:

[https://meet.ipr.res.in/Dr.PravinDwivedi\\_PDFtalk](https://meet.ipr.res.in/Dr.PravinDwivedi_PDFtalk)

### **Abstract :**

3d transition metal oxides have been considered as a promising anode material for rechargeable ion batteries as it possess high theoretical capacity, low toxicity, and cost effectiveness. Nanostructure engineering provides an opportunity to play with different morphology and structures of nanomaterials which helps to enhance the electrochemical performance of electrode materials. Carbon plays an effective role in hybrid nanomaterials electrode for LIB, as it improves the electrochemical performance by enhancing the conductivity, buffering the volume expansion and contraction of the electrode material during continuous charge discharge process. Doping of heteroatoms such as Nitrogen, Boron, Sulphur etc. on the surface of carbon matrix can improve electrochemical performance with enhanced lithiation and sodiation capacity. Lone pair electrons of N and S atoms contribute to extension of the conjugated electron clouds of carbon matrix resulting in increased conductivity which enhances the rate capacity and cycle life of the electrode material.

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