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Functional Inks for Printed Electronics

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Abstract:

Conventional electronics has been made normally using microchips which are very small and made of silicon. They cannot be used for large area applications such as large displays, or where flexibility is required. A new type of electronics has emerged in recent years, which can be worn as wearables or bent, twisted, wrapped without getting affected in its electronic functionality. These kind of electronics can be envisage through printing. Just as different coloured inks are required in conventional printing, inks for different electronic functions are required in printable electronics. Hence, functional inks especially conductive inks play a key role in this technology. Of the many inks, conductive ink is crucial in the manufacturing of printed devices. Conductive inks consist of silver, graphite, carbon, or other precious metal-coated base materials. They are often prepared using metal nanoparticles and carbon nanomaterials. These inks are suitable for printing process such as for screen and inkjet printing process. Conductive patterns can be produced using screen printing or ink jet printing on various substrates including plastics and paper.

***About the speaker:** Dr. Ashish Gupta is a Team Leader in National Center for Flexible Electronics, IIT Kanpur. He is leading ink activity in NCFlexE and his research interest functional inks for printable electronics