

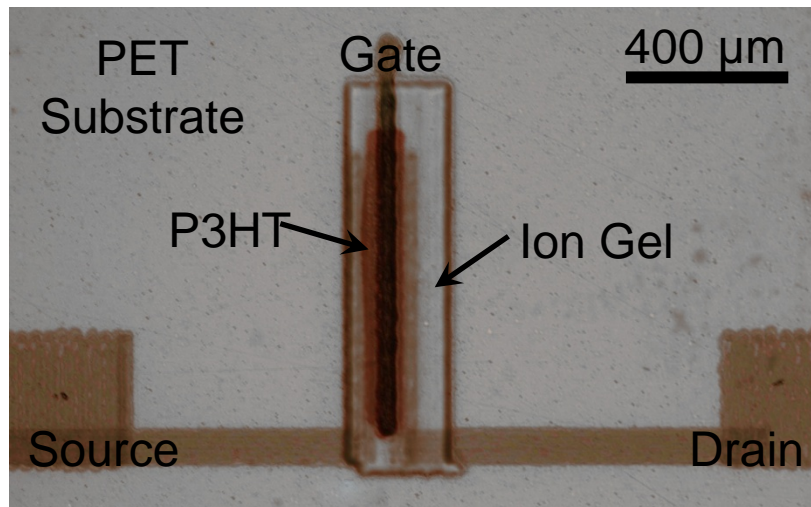
# Low Voltage, Printed Transistors on Plastic Employing High Capacitance, Nanostructured Gate Dielectrics

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NNIN Facility utilized: Characterization Facility

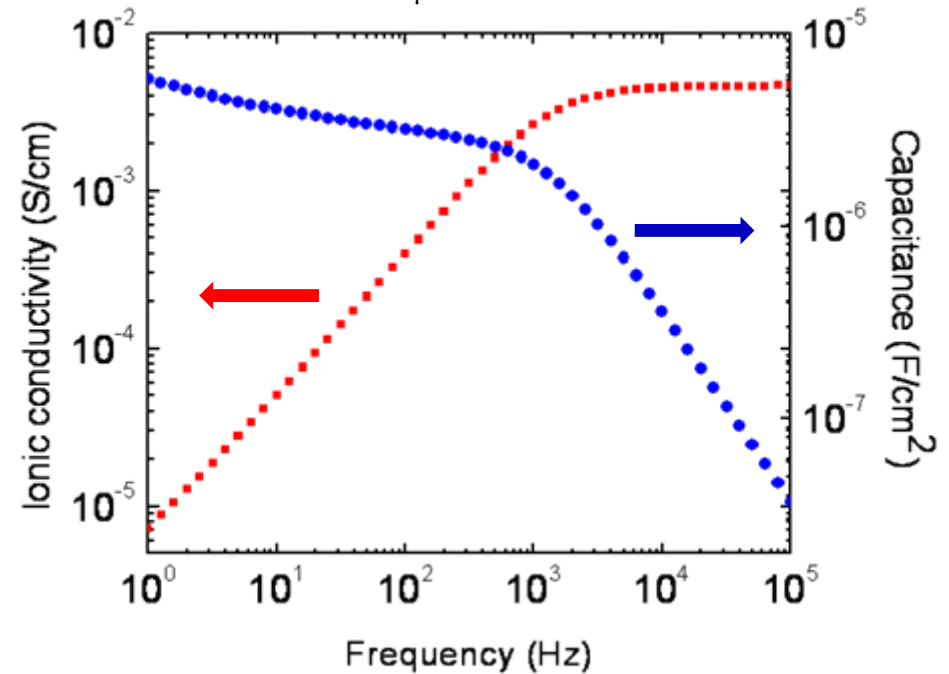
## DESCRIPTION OF WORK

Investigating electrical properties of an ion gel (a soft solid consists of ionic liquid and block copolymer) as a gate dielectric in order to achieve low voltage operation of printed transistors.



## MAJOR OBSERVATIONS

- Operating speed of a transistor is greatly enhanced up to the kilohertz range by using ion gel as a gate dielectric material. (this is fast for printed transistors)
- Ion gel has very large capacitance up to about 10 kHz where it is  $1 \mu\text{F}/\text{cm}^2$ .



## Publications

- Cho, et al. *Nature Materials*, 2008.