

## Near Infrared Organic Phototransistors with Polymeric Channel/Dielectric/Sensing Triple Layers

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Organic phototransistors (OPTRs) have been highlighted because of their potentials for flexible and bendable optical sensor modules in the flexible electronics era. In particular, flexible near infrared (NIR) sensors are considered one of the most prominent components when it comes to their broad applications including light detection and ranging (LiDAR) systems for autonomous vehicles, humanoid robots, etc., which cannot be fully satisfied with conventional inorganic LiDAR sensors possessing a highly limited flexibility. In this regard, for the last decade, our group has focused on the development of NIR-OPTRs by employing NIR-absorbing conjugated polymeric semiconductor. In this presentation, we demonstrate an improved concept of device, which can deliver better NIR sensing characteristics, by integrating three components - channel, dielectric, and sensing layers - *so-called* CDS structure.