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Semiconductive Red Phosphorus Thin Films

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The discovery of carbon nanotubes and the isolation of graphene from bulk graphite were individually responsible for launching entire scientific fields of inquiry into 1D and 2D nanomaterials, respectively. Researchers are taking inspiration and insights from carbon nanotubes and graphene and applying it to new or recently rediscovered 2D materials that do possess a band gap, such as black phosphorus (BP) and red phosphorus (RP). These materials may be suitable for optoelectronic applications from the near infrared region through to the visible. Recently, we found that films prepared from red phosphorus are also semiconductive. In this report, we discuss the electronic and optoelectronic property of these films.

Biography:

Dr. Hai-Feng (Frank) Ji is a current professor of Department of Chemistry, Drexel University. His research interests focus on MEMS devices, polymers, nanomaterials for energy & environmental applications, drug discovery, nanopillars and phosphene for energy applications and surface chemistry. He is currently a co-author of 170 peer-viewed journal articles and book chapters. He has an H-index of more than 30.