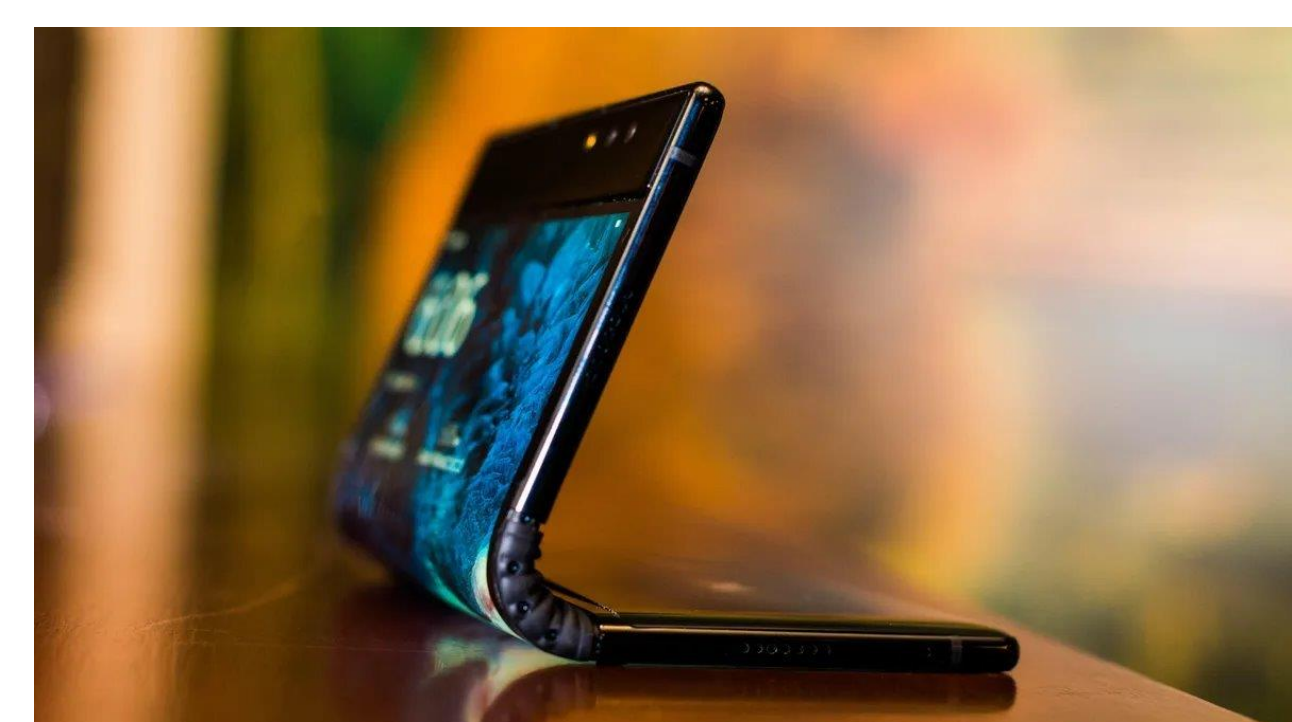


Introduction

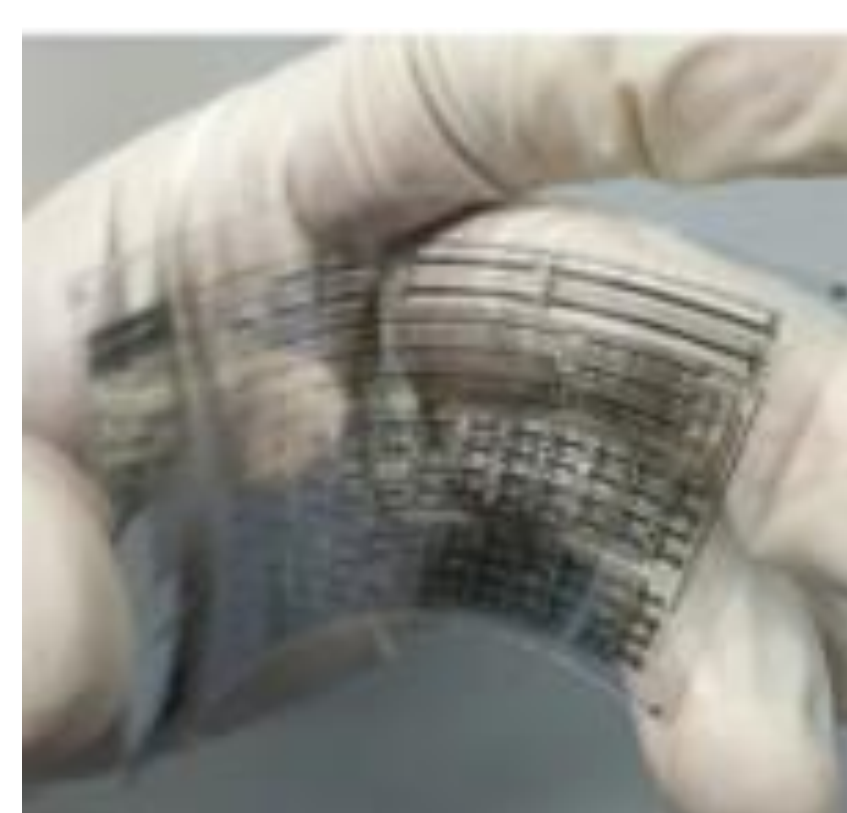
What are organic based semiconductors?



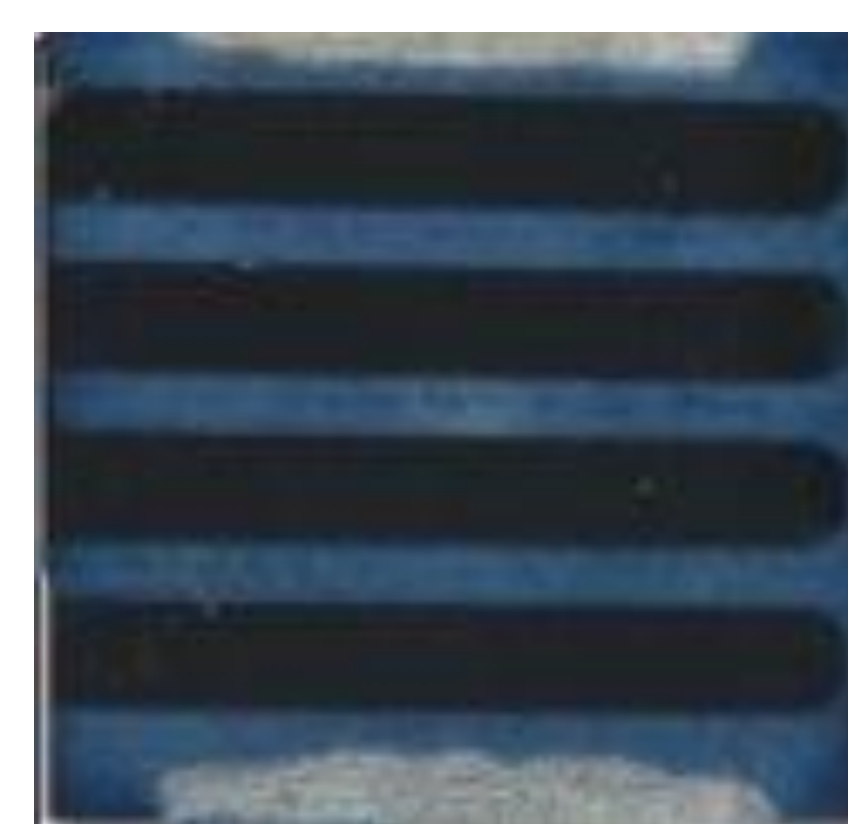
PCMAG.COM



Angela Lang/CNET

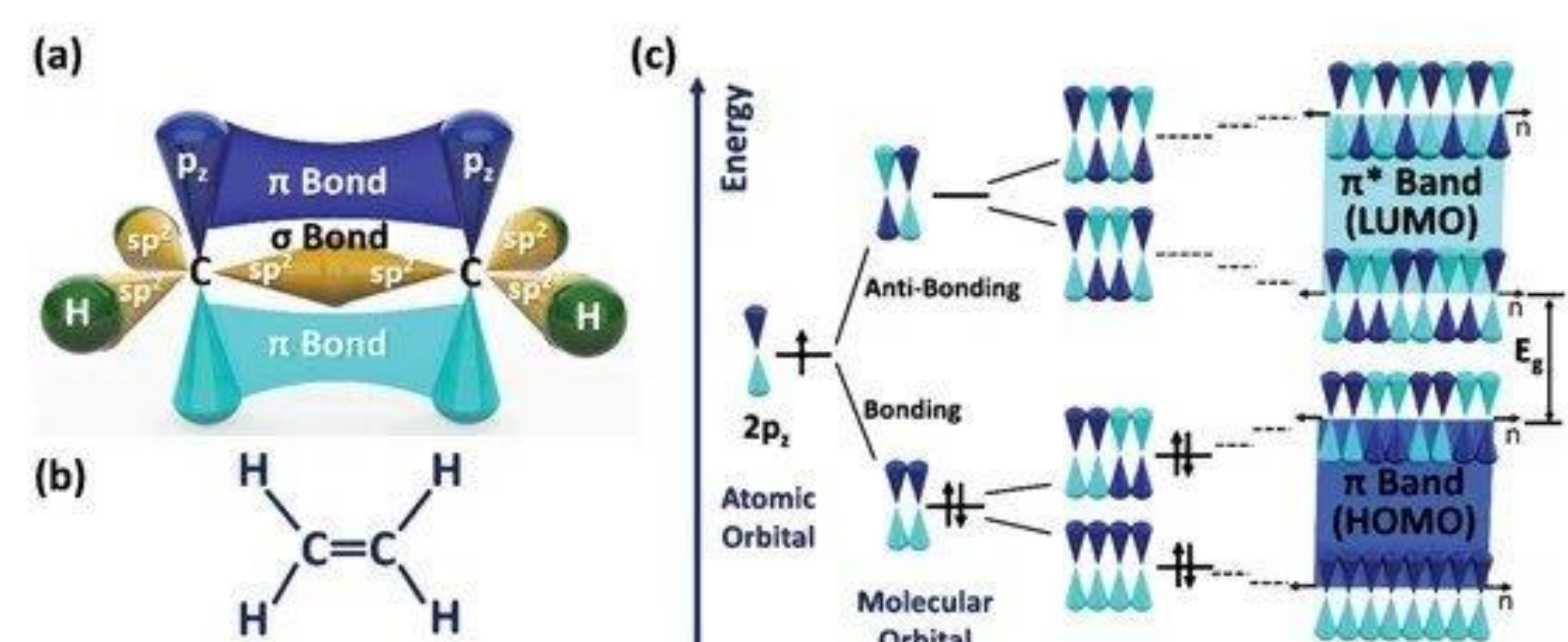


Spinger Nature

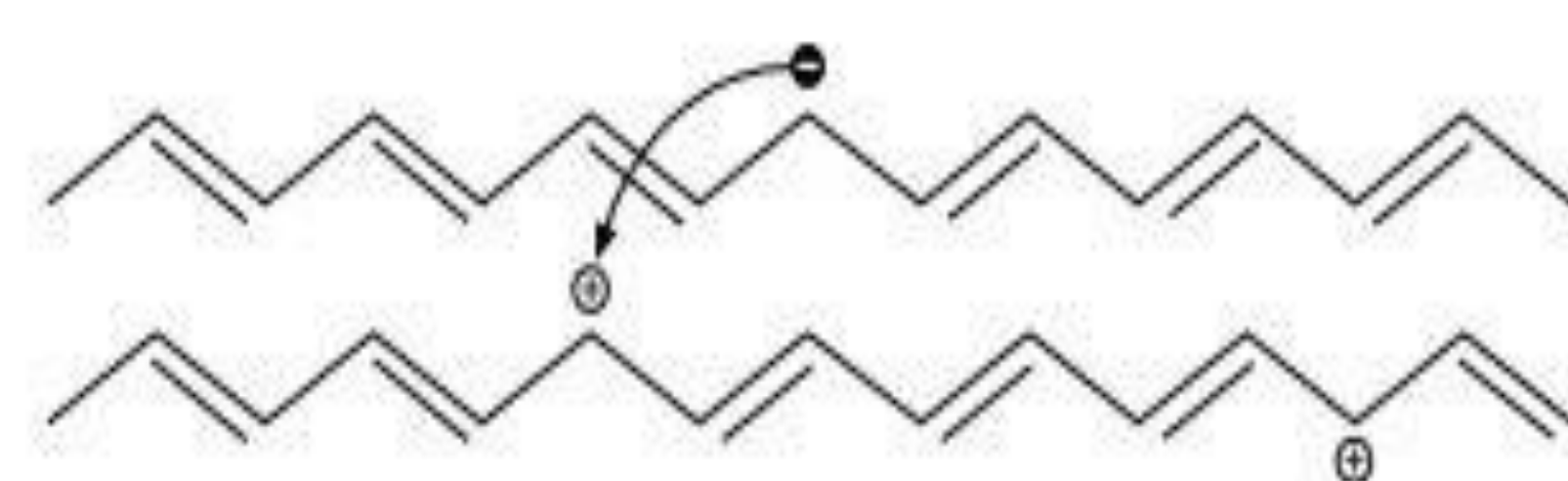


Shae Cole

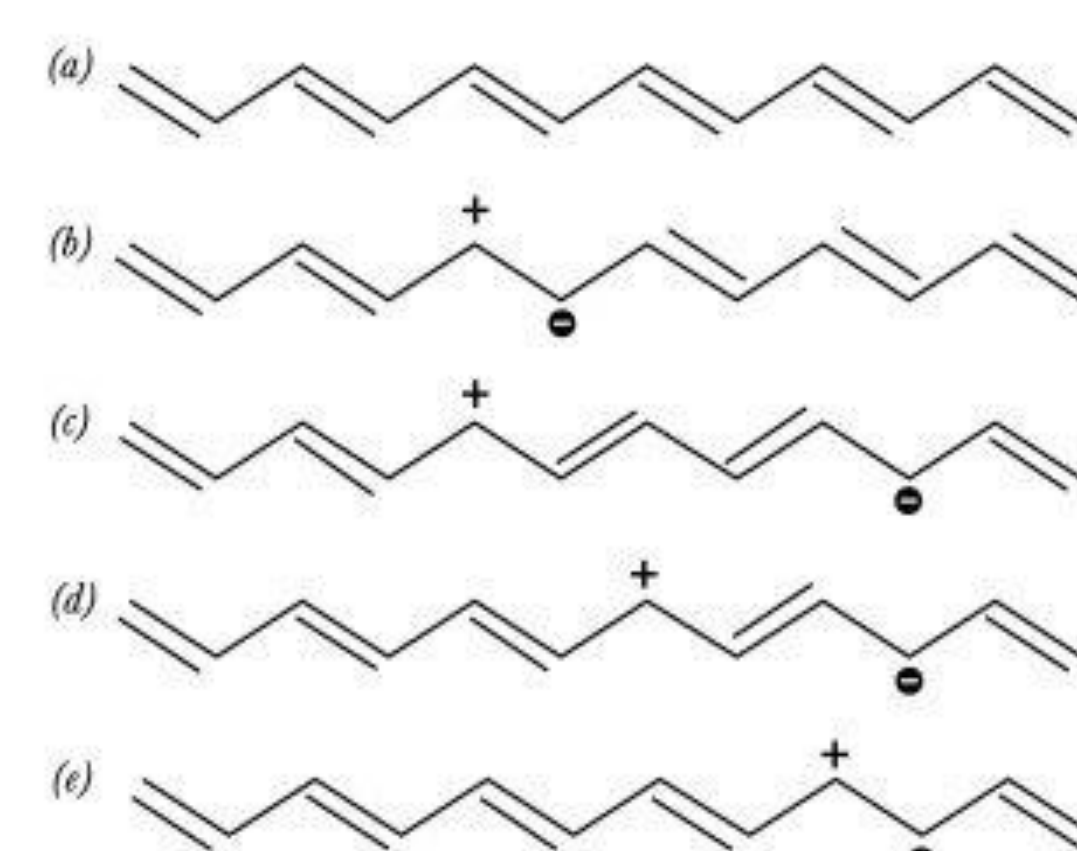
Background



Heydari Gharahcheshmeh



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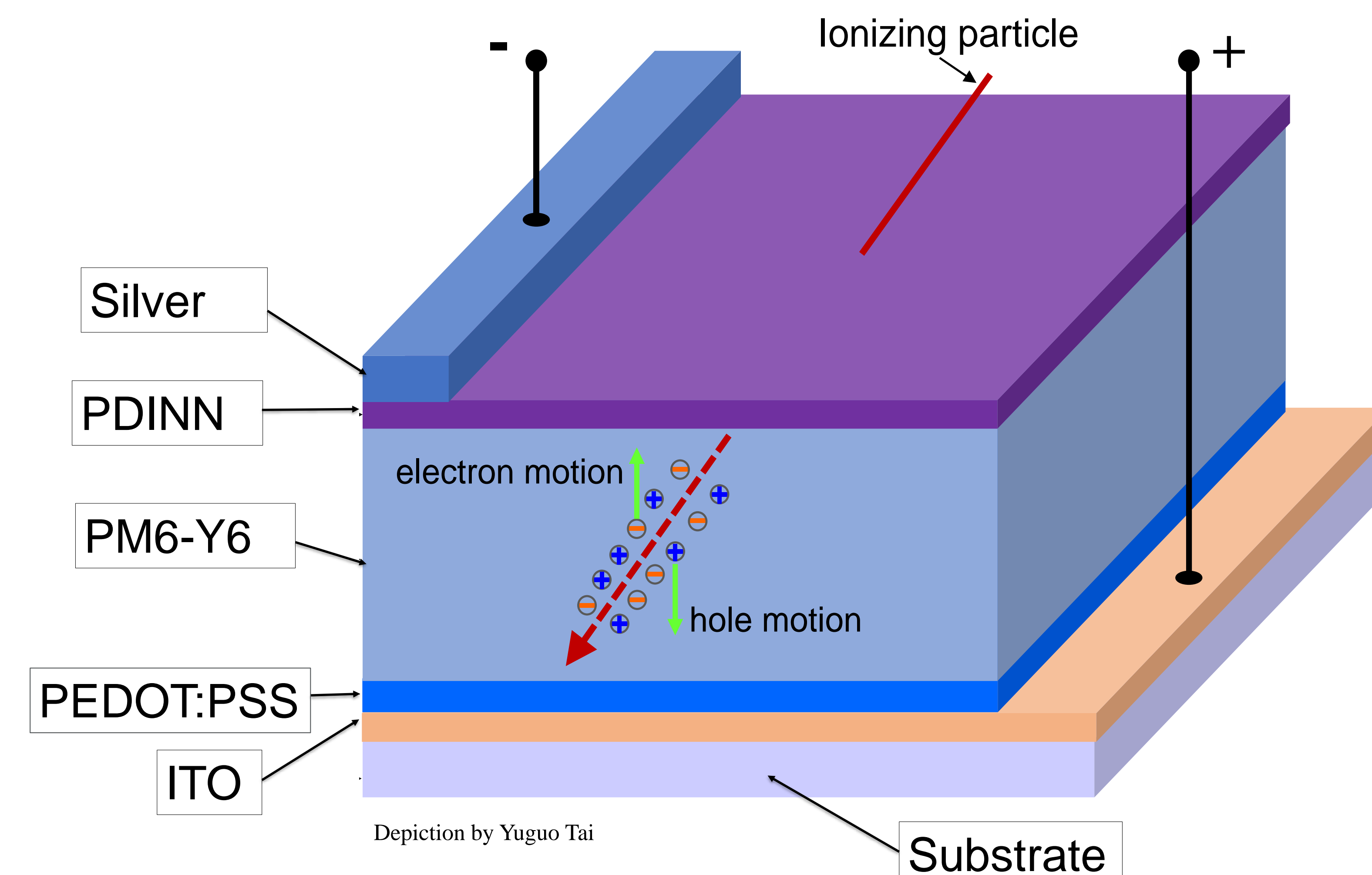


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Proposed Fabrication

Cleaning Procedure

- Physical cleaning in DI water and Soap
- Sonication 40° C for 30 minutes
 - DI Water and Soap
 - DI Water
 - Acetone
 - IPA
- Development of PEDOT:PSS
 - Filtration with Nylon Filter
- Deposition of PEDOT:PSS
- RPM 4000 for 30 seconds
 - Annealing Temperature 200° C
- Development of PM6-Y6
- Polymer Blend Ratio 1:1.2
 - Dissolve in Chlorobenzene at 10 mg/mL
 - Mix for a minimum of 3 hours before deposition
- Deposition of PM6-Y6
 - Spin Coat on top of PEDOT:PSS
 - 15-50 micro-liters
 - Dynamically
 - 100-4000 RPM
 - Annealing at 90° C
 - Variation in Thickness & Method
 - Spin Coating
 - Drop Casting
 - Thickness 1-10 um
- Preparation of PDINN (ETL)
 - Dispersion into Methanol
 - 1 mg/mL
- Deposition of PDINN
 - Spin Coat
 - 3000 RPM for 30 seconds
 - Target Thickness 5-10 nm
- Deposition of Silver
 - Thermal Evaporation Chamber
 - Target Thickness of 100 nm



Future Research

Device Testing and Degradation

- Proton Beams
- Electrons Beams
- Xray Beams

Flexible Substrates

- Improvement of Geometric Efficiencies

Changes to Bulk Heterojunction

- Tertiary Polymer Film
- Use of other Donor and Acceptor Polymers

Multi-Layered OPV

- Design and Fabrication of Multiple Active Volumes

Fabrication Optimization

- Annealing Temperatures
- BHJ deposition

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