

Postdoctoral Research



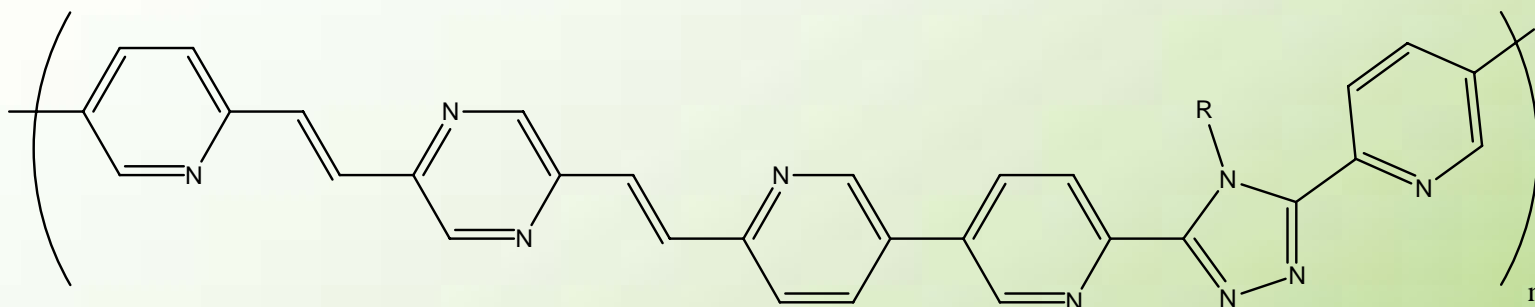
*Naval Air Warfare Center Weapons Division
China Lake, CA*

*Heterocyclic Polymers as Electron-Deficient
(n-Type) Materials in Advanced
Charge Storage Devices*

Sean Owen Clancy, Ph.D.

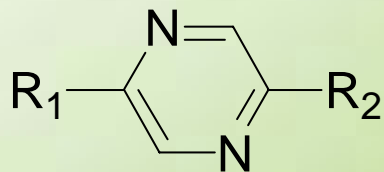
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Heterocyclic Polymers

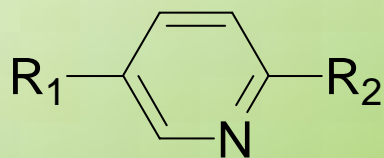


- Hybrid PPP-PPV Analog

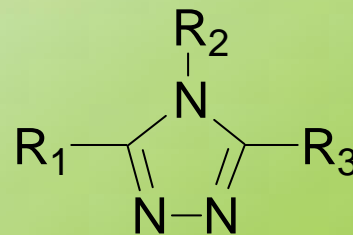
As well as other polymers containing heterocyclic systems, such as:



- Pyrazines

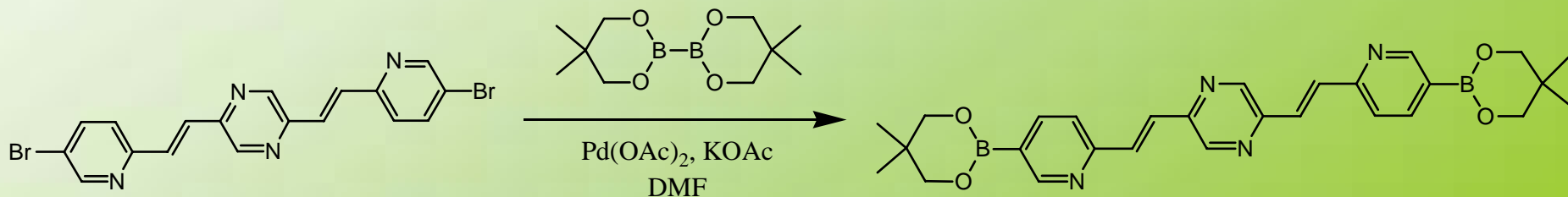
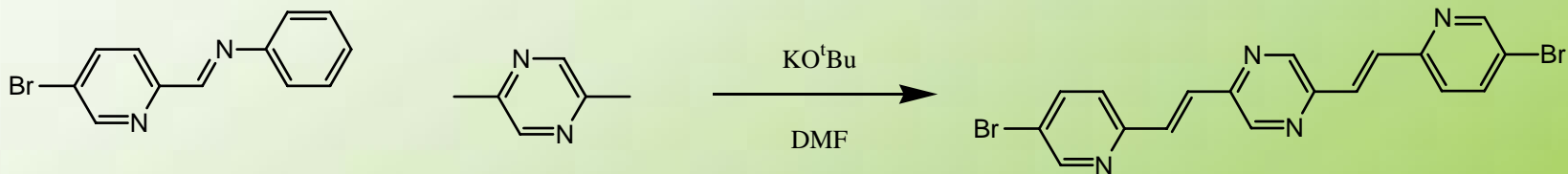
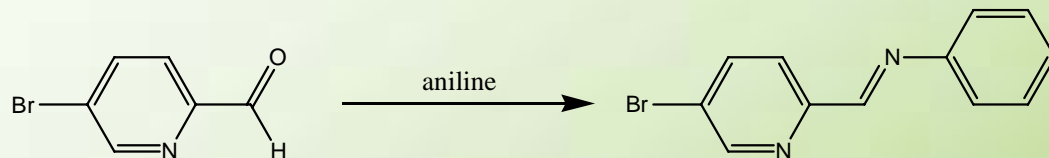
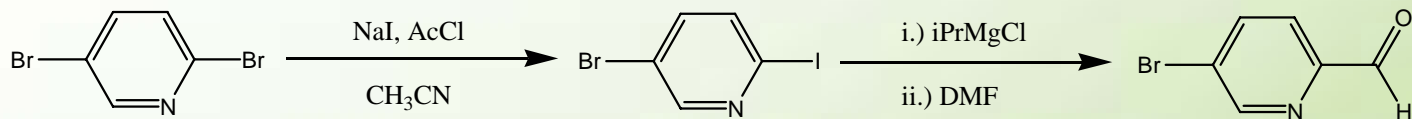


- Pyridines

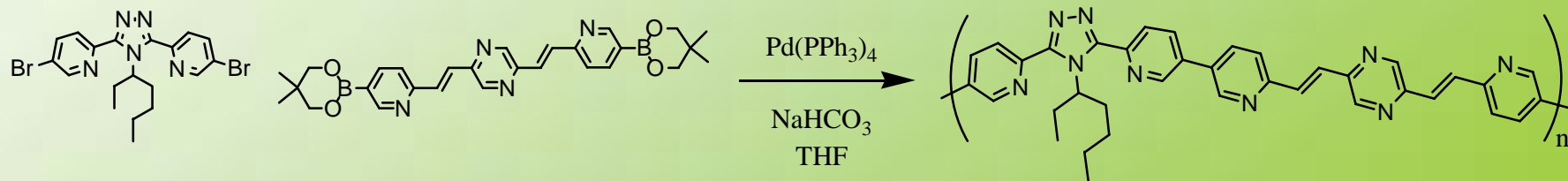
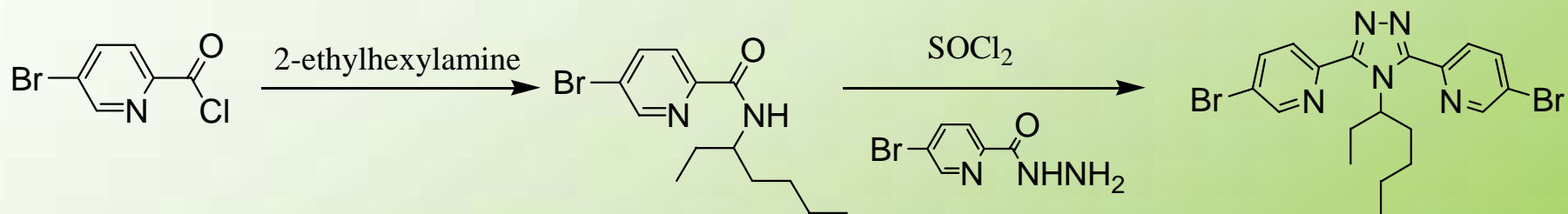
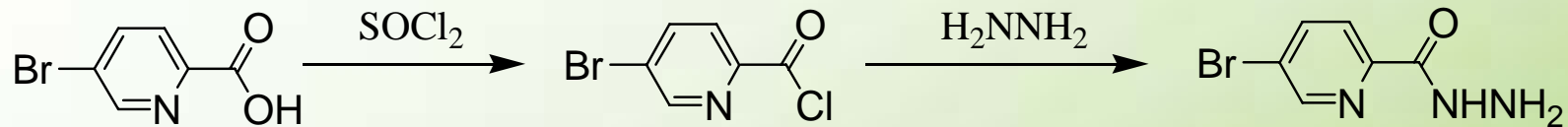


- Triazoles

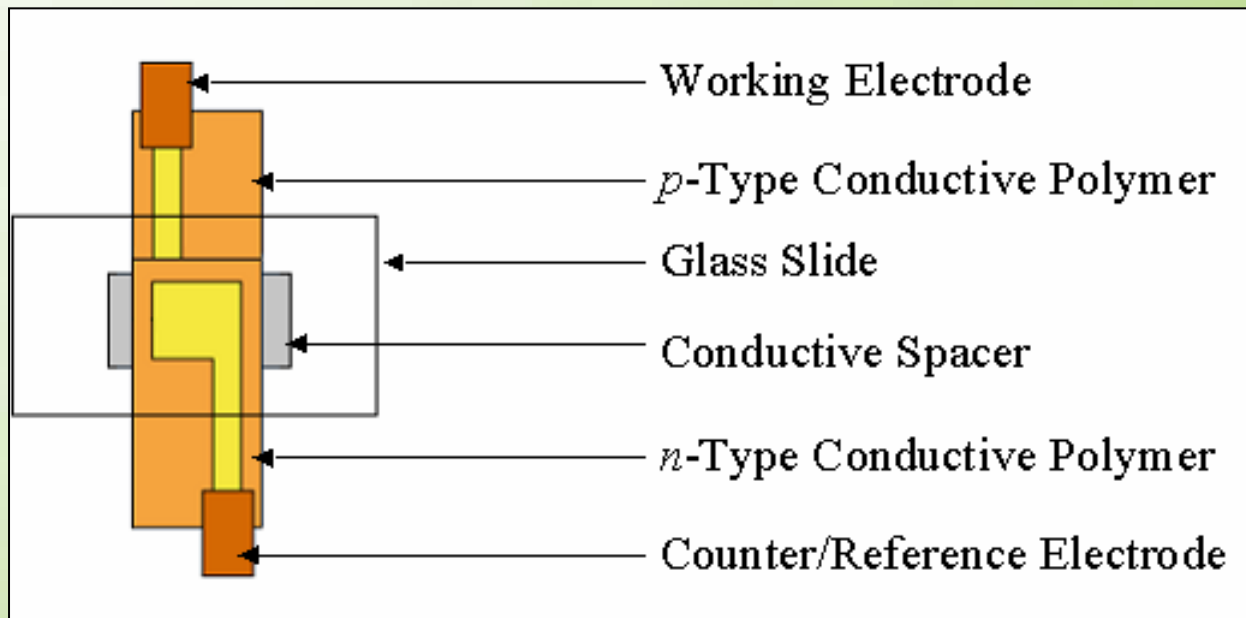
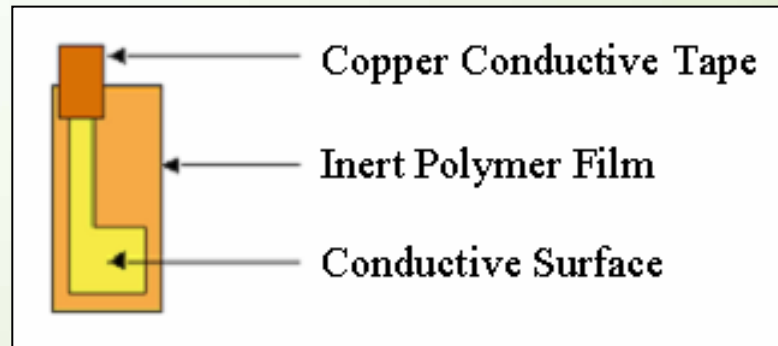
Hybrid PPP-PPV Analog



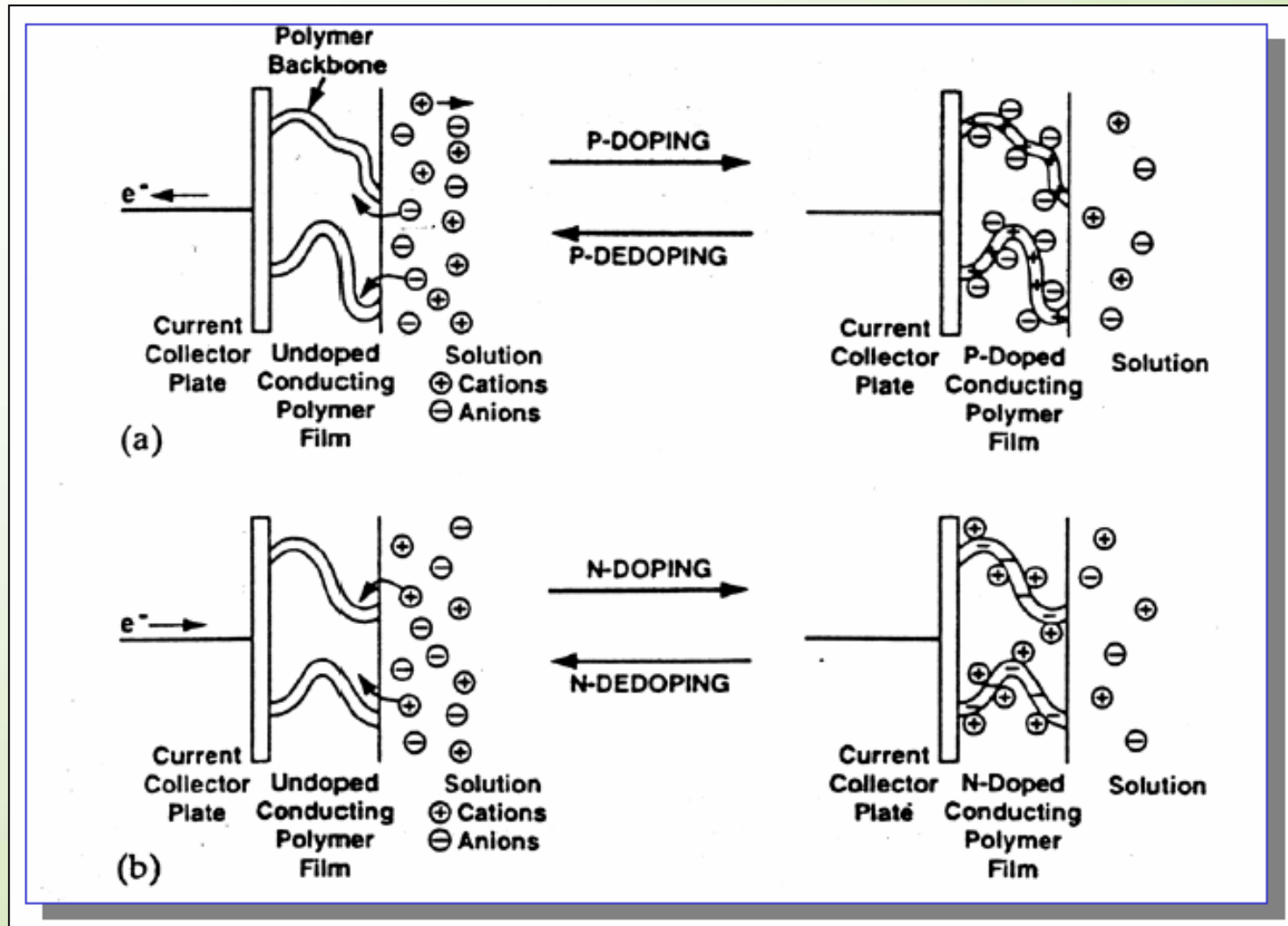
Hybrid PPP-PPV Analog



Supercapacitor Devices



Charging Process in Electroactive Polymers



Rudge *et al.*, *J. Power Sources* **1994**, 47, 89-107.

Knowledge, Skills, and Abilities Enhanced or Obtained via this Research

- Design and synthesis of: small molecule organics, mostly heterocyclics, and polymers.
- Characterization of materials through a variety of techniques: NMR, mass spectrometry, elemental analysis, cyclic voltammetry, galvanometry, multiple microscopy methods, etc..
- Purification of materials via: column chromatography, preparative thin layer chromatography, medium pressure chromatography, ambient pressure and vacuum distillation, reprecipitation, recrystallization, and sublimation.
- Structure-property / structure-function relationship studies.
- Data analysis using a variety of software: Excel, Origin, etc..



NAWCWD – Acknowledgements

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Research Advisers

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Jennifer A. Irvin, Ph.D.

Research Group

Adam Closson, Ph.D.

Justin Debord, Ph.D.

David Witker, Ph.D.

Collaborators

John Stenger-Smith, Ph.D. – NAWCWD

John Reynolds, Ph.D. – University of Florida

Fred Wudl, Ph.D. – University of California, Los Angeles

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