

*Supplementary Material for*

**The Role of Graphene in New Thermoelectric Materials**

Rafiq Mulla<sup>1\*</sup>, Alvin Orbaek White<sup>1</sup>, Charles W. Dunnill<sup>1,2</sup> and Andrew R. Barron<sup>1,3,4,5\*</sup>

<sup>1</sup>*Energy Safety Research Institute, Swansea University Bay Campus, Swansea, SA1 8EN, UK*

<sup>2</sup>*Ceres Power Limited, Horsham, England, UK*

<sup>3</sup>*Arizona Institute for Resilient Environments and Societies (AIRES), University of Arizona, Tucson, AZ 85721, USA*

<sup>4</sup>*Department of Chemistry and Department of Materials Science and Nanoengineering, Rice University, Houston, TX 77005, USA*

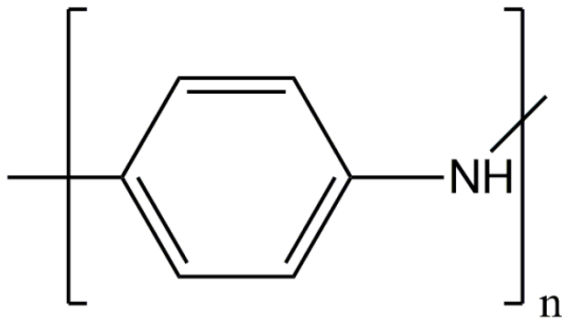
<sup>5</sup>*Faculty of Engineering, Universiti Teknologi Brunei, Brunei Darussalam*

\*E-mail: ARB [a.r.barron@swansea.ac.uk](mailto:a.r.barron@swansea.ac.uk)

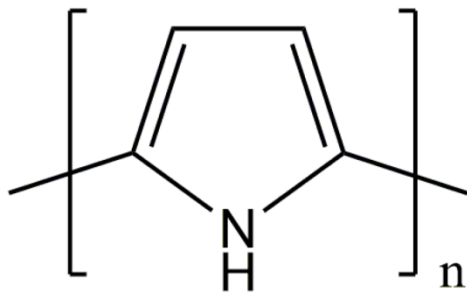
RM [rafiq.mulla@swansea.ac.uk](mailto:rafiq.mulla@swansea.ac.uk)

### Chemical structures of some polymers used in thermoelectric applications

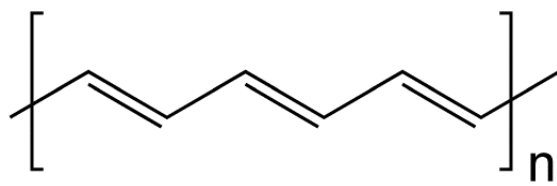
(a) Polyaniline (PANI)



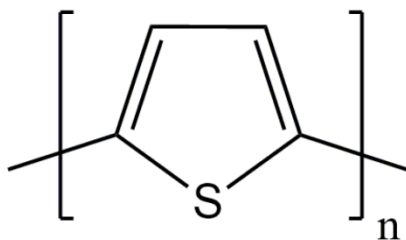
(b) Polypyrrole (PPy)



(c) Polyacetylene (PA)



(d) Polythiophene (PTH)



(e) Poly(3,4-ethylenedioxythiophene)poly(styrenesulfonate) (PEDOT:PSS)

