3. Conclusion

In summary, we have demonstrated two facile approaches for the chemical modification of fullerenes via either Rh-catalyzed arylation with organoboronic acids or cycloaddition with 5-alkoxyindene. UV-vis absorption and CV measurements showed that the substituents have little impact on the energy levels of the resultant fullerene derivatives. However, we found that the substituents have huge impacts on other physical properties, such as solubility and crystallinity. Since the control of film morphology is critically important for applications in organic electronic devices, the substituents of the fullerene derivatives can be tailored to achieve desired nanostructured morphology when blended with semiconducting polymers.

Acknowledgement

The authors would like to thank Judy Kung and Ludmila Scoles at EME-NRC and Raluca Movileanu at AEP-NRC for their technical support. The financial support from the Printable Electronics program of National Research Council of Canada is greatly appreciated.

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