Prof. Eamor M. Woo

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Research Interests

Polymer physics; morphology, crystallization; biodegradable polymers, morphology; polymer crystal assembly; Polymer blends; miscibility; phase separation; Polymers nanocomposites.

Representative Publications

1. **E. M. Woo***, G. Lugito, J.-H. Tsai, and A. J. Alexandro*, "Hierarchically Diminishing Chirality Effects on Lamellar Assembly in Spherulites Comprising Chiral Polymers", **Macromolecules**, published on line (2016/03).

2. G. Lugito, E. M. Woo*, and Y-T Hsieh. Transitional Ring Bands Constructed by Discrete Positive- and Negative-Birefringence Lamellae Packed in Poly(1,6-hexamethylene adipate) Spherulites, **Macromolecules**, vol. 48 (21), 7953–7967 (2015). ISSN: 0024-9297

3. **E. M. Woo*** and G. Lugito, "Origins of Periodic Bands in Polymer Spherulites", **Euro. Polym. J., (Feature Article)**, 71, 27 – 60 (2015). [Featured on journal cover page]

4. **E. M. Woo*,** G. Lugito and C.-E. Yang, "Analysis of Crystal Assembly in Banded Spherulites of Phthalic Acid upon Solvent Evaporation", **Cryst. Eng. Comm**. (RSC), 18, 977-985, (2016). DOI: 10.1039/C5CE02043C.

5. G. Lugito and **E. M. Woo*,** "Intertwining Lamellar Assembly in Porous Spherulites Composed of Two Ring-banded Poly(ethylene adipate) and Poly(butylene adipate)", **Soft Matter**, 11, 908-917 (2015).

6. G. Lugito, C. Y. Yang, and **E. M. Woo***, "Phase Separation Induced Lamellar Re-Assembly and Correlation with Spherulite Optical Pattern Change", **Macromolecules**, 47, 5624−5632 (2014).

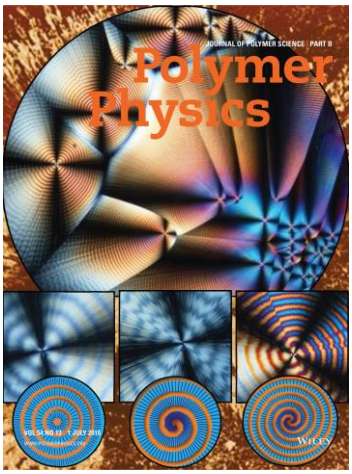
7. G. Lugito and **E. M. Woo***, "Interior Lamellar Assembly in Correlation to Top-Surface Banding in Crystallized Poly(ethylene adipate). **ACS Cryst. Growth & Design**, 14, 4929−4936 (2014).

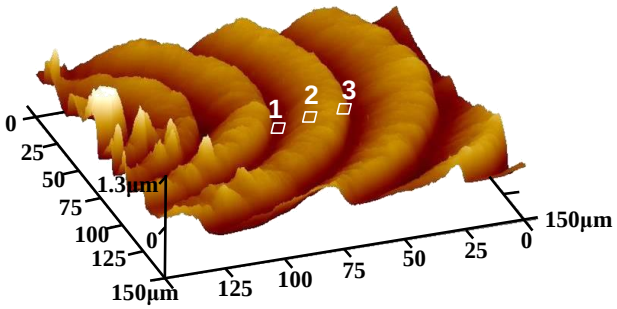
8. H. Ni'mah and **E. M. Woo***, "Dendritic Morphology Composed of Single Crystals in Poly(ethylene succinate) Blended and Melt-Crystallized with Poly(p-vinyl phenol)", ACS **Crystal Growth and Design**, 14, 576 (2014).

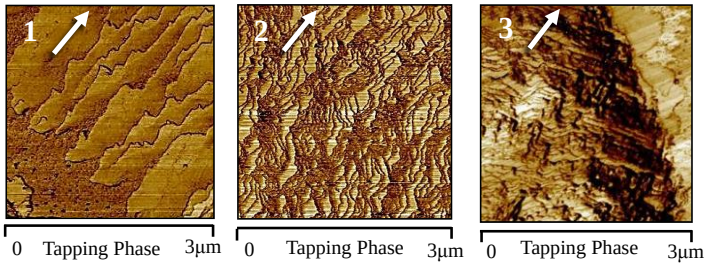
9. S. Nurkhamidah and **E. M. Woo***, K. Tashiro, "Optical Birefringence Patterns and Corresponding Lamellar Alteration Induced by Solvent Vapor on Poly(L-lactic acid) Diluted with Poly(1,4-butylene adipate), **Macromolecules**, 45, 7313-7316 (2012). http://dx.doi.org/10.1021/ma301374n

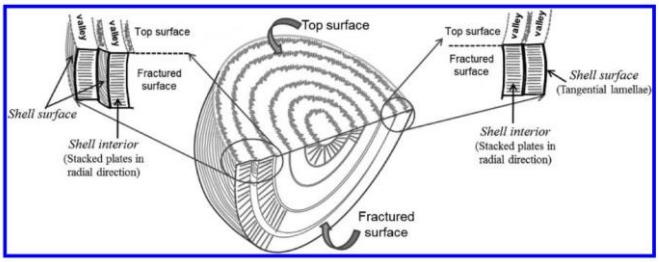
10. S. Nurkhamidah and **E. M. Woo***, "Phase Separation and Lamellae Assembly below UCST in Poly(L-lactic acid)/Poly(1,4-butylene adipate) Blend Induced by Crystallization", **Macromolecules**, 45, 3094−3103 (2012). dx.doi.org/10.1021/ma300288v |

Perpendicularly-oriented (corrugate-board) structure with discontinuity: - A novel mechanism that revolutionizes the science knowledge on polymer crystals.

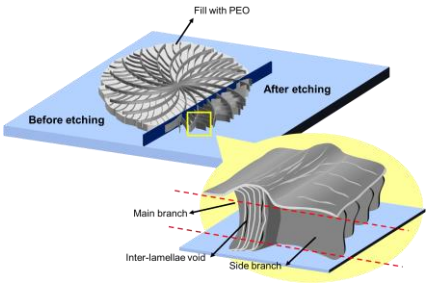




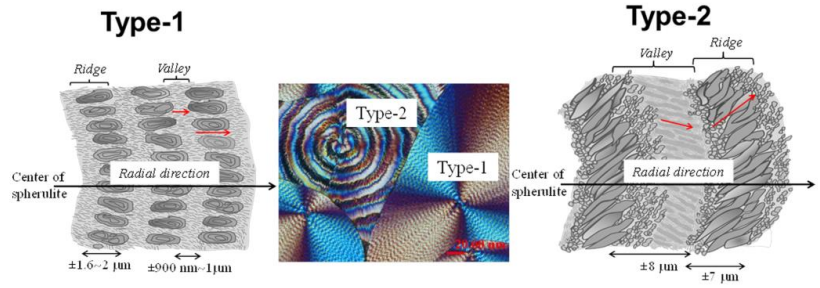


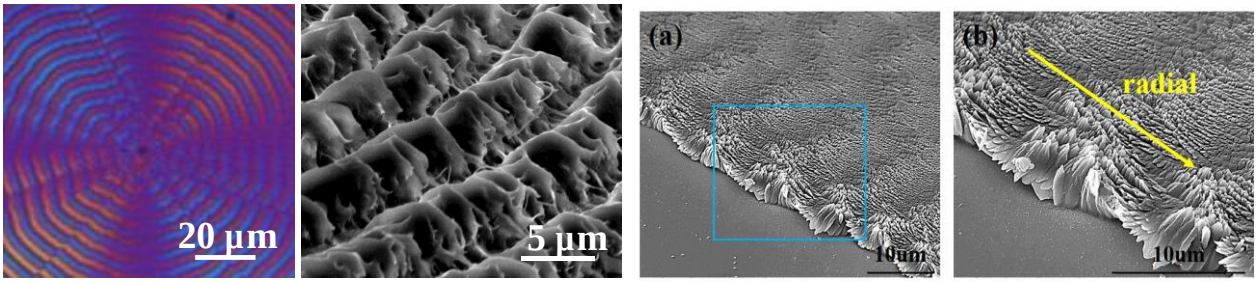


. Schemes for correlations between the interior layered lamellae and top-surface ring bands showing onion-like alternating shell.



Novel breakthrough mechanisms for periodic birefringence bands in polymer crystals and spherulites.





Our novel approaches: Interior lamellar assembly in correlation to top-surface birefringence banding in crystallized polymers [poly(ethylene adipate), PLLA, PHB, etc] have solved the half-century puzzles of polymer spherulites!