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Research Interests: Polymer solutions,
Miscibility and applications
of polymer blends.

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Research

Our interest in polymer blends covers the fundamental of blend miscibility as well as applications. We have tried to prepare new epoxy resin modifiers by blending rubber with thermoplastic polymers. At present, most of the commercially available epoxy resin modifiers and fillers are not completely satisfactory in decreasing the residual internal stress and increasing the toughness without compromising other important properties of the resins. The new modifiers consists of a stress releaser and a toughening agent. During the epoxy resin curing stage, the modifiers will be dispersed in the resin in the form of a core-shell structure. We believe that the modifiers with such a core-shell structure will be able to effectively reduce the residual internal stress and/or increase the toughness of the cured epoxy resins.

The methods of polymer blending have also been applied to develop new solid polymeric electrolytes with high ionic conductivity and good mechanical properties. Such ideal polymeric electrolytes are much sought after for use in lithium ion rechargeable batteries, and in many other applications.

Teaching

[CBC214: Physical and Biophysical Chemistry 1](#)

[CBC932: Polymer Chemistry](#)

MPS901: *Physical and Mathematical Sciences 1*

Selected Publications

Rasiah IJ, MH Nurmawati, and KS Siow, *Int'l J of Polymer Analysis and Characterization*, **9** (2004): 213-228.

Siow KS, XJ Xu, MK Wong, and LM Gan, *J of Applied Polymer Science*, **91** (2004): 1360-1367.

Hou XP and KS Siow, *Solid State Ionics*, **147** (2002): 391-395.

Xu XJ, KS Siow, MK Wong, and LM Gan, *J of Polymer Science, Part A – Polymer Chemistry*, **39** (2001): 1634-1645.

Hou XP and KS Siow, *Polymer*, **42** (2001): 4181-4188.

Hou XP and KS Siow, *J of Solid State Chemistry*, **5** (2001): 293-299.

Hou XP and KS Siow, *Polymer*, **41** (2000): 8689-8696.

Xu W, KS Siow, ZQ Gao, and SY Lee, *J of Macromolecular Science – Pure and Applied Chemistry*, **A36** (1999): 775-794.

Hou XP, KS Siow, and ZQ Gao, *J of Solid State Electrochemistry*, **3** (1999): 387-391.

Wang HB and KS Siow, *Polymer Engineering and Science*, **39** (1999): 422-429.