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Neutron Reflectometry Investigation of Interfacial Structure in Tethered Polymer Systems. M.D. Foster, Dept. of Polymer Science, The Univ. of Akron, Akron, OH 44325-3909.

When a polymer chain is tethered to a surface or various portions of a polymer chain are tethered to one another, as in a long-branched polymer chain, the behavior of the polymeric material interface can be altered. Neutron scattering measurements have been key in elucidating both the bulk thermodynamics of binary polymer blends containing a linear component and a branched component and the interfacial behavior of these blends. Reflectometry is also useful for clarifying the internal structure of diblock copolymer brushes in which the tethering of each diblock chain to a surface results in interesting properties. This system represents a special case in which each chain exhibits both internal tethering of the one block to the other and tethering to a surface external to the molecule.