Meshfree methods, particle methods, and generalized finite element methods have undergone substantial development since the mid 1990s. The growing interest in these methods is in part due to the fact that they are very flexible numerical tools and can be interpreted in a number of ways. For instance, meshfree methods can be viewed as a natural extension of classical finite element and finite difference methods to scattered node configurations with no fixed connectivity. Furthermore, meshfree methods have some advantageous features which are especially attractive when dealing with multiscale phenomena: A-priori knowledge about particular local behavior of the solution can be introduced easily in the meshfree approximation space, and an enrichment of a coarse scale approximation with fine scale information is possible in a seamless fashion. The implementation of meshfree methods and their parallelization however requires special attention, for instance with respect to numerical integration.

This symposium aims to promote collaboration among engineers, mathematicians, and computer scientists and industrial researchers to address the development, mathematical analysis, and application of meshfree and particle methods especially to multiscale phenomena. While contributions in all aspects of meshfree methods are invited, some of the key topics to be featured are

* Coupling of meshfree methods, finite element methods, particle methods, and finite difference methods

* Coupling of multiple scales, e.g. continuum models to discrete models

* Application of meshfree, generalized/extended finite element methods

* Parallel computation in meshfree methods

* Mathematical theory of meshfree, generalized finite element, and particle methods

* Fast and stable domain integration methods

* Enhanced treatment of boundary conditions

* Identification and characterization of problems where meshfree methods have clear advantage over classical approaches