

Mesh-Free Applications for Static and Dynamically Changing Node Configurations

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In this talk will demonstrate various geophysical applications using mesh-free methods, in particular radial basis functions. This method only require that the nodes to be laid out quasi-uniformly on a local level, but no connectivities between nodes are needed to define elements or volumes, as in other numerical methods. The importance of the talk is to demonstrate why fast algorithms are needed for disturbing nodes in a variety of geometries and dimensions. Examples will be shown where nodes need to be dynamically or statically generated with certain properties if the numerical scheme is to capture the features of the physical flow.