

A brief overview of meshless methods based on the radial basis functions and their modifications

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Abstract: In the talk, some efficient and powerful computational meshless techniques based on radial basis functions (RBFs) are introduced to solve and simulate anomalous problems.

Recently, the theory of fractional calculus has been great attention from scientists and engineers as a generalization of the theory of classical calculus. Theory of fractional calculus is a powerful instrument for describing anomalous phenomena in natural science and engineering. Recently various types of anomalous practical processes that occur in physics, chemistry, mechanics and other branches of natural sciences have been mathematically modeled as fractional differential and integral equations. One of the most efficient and popular classes of computational methods to deal with such anomalous practical high dimensional models with complicated and irregular domains are meshless methods based on the radial basis functions. Furthermore, some advantages and disadvantages of these methods are investigated and some suggestions for modified the meshless methods are proposed.

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