

## **A New Meshless Interpolation Scheme for MLPG\_R Method**

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### **Summary**

In the MLPG\_R (Meshless Local Petrove-Galerkin based on Rankine source solution) method, one needs a meshless interpolation scheme for an unknown function to discretise the governing equation. The MLS (moving least square) method has been used for this purpose so far. The MLS method requires inverse of matrix or solution of a linear algebraic system and so is quite time-consuming. In this paper, a new scheme, called simplified finite difference interpolation (SFDI), is devised. This scheme is generally as accurate as the MLS method but does not need matrix inverse and consume less CPU time to evaluate. Although this scheme is purposely developed for the MLPG\_R method, it may also be used for other meshless methods.

