

## Comparison of PIM and RPIM solutions of Elasto-plastic Thick Beams

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### **Abstract**

In this study, the point interpolation method (PIM) and radial point interpolation method (RPIM) solutions of elasto-plastic thick beams are compared by using standard Gaussian integration and a nodal integration based on Taylor series expansion. The effects of integration schemes, support domain sizes and RPIM shape parameters on the solution convergence are also investigated after yield point. The global weak form is used to obtain nodal stiffness matrixes. A simply supported beam with constant strength is solved by considering an elasto-plastic hardening material. Its results are compared with finite element solutions in ANSYS.

**Keywords:** PIM, RPIM, Elasto-plastic, Meshfree, Thick Beams.