The least-squares meshfree method

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SUMMARY
A new efficient meshfree method is presented in which the 9rst-order least-squares method is employed instead of the Galerkin’s method. In the meshfree methods based on the Galerkin formulation, the source of many difficulties is in the numerical integration. The current method, in this respect, has different characteristics and is expected to remove some of the integration-related problems. It is demonstrated through numerical examples that the present formulation is highly robust to integration errors. Therefore, numerical integration can be performed with great ease and effectiveness using very simple algorithms.

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KEY WORDS: least-squares; meshfree method; meshless method; moving least-squares; integration error