**Mini-symposium Title**

Advances and Applications in Meshfree and Particle Methods

**Description**

Meshfree and particle methods offer flexible, mesh-independent frameworks that are particularly effective for modeling large deformations, evolving discontinuities, and complex physical phenomena. Their inherent adaptability has enabled successful applications in diverse fields, including solid and fluid mechanics, geomechanics, biomaterials, and multi-physics systems. In recent years, the integration of meshfree methods with emerging areas—such as machine learning, data-driven modeling, optimization, and high-performance computing—has opened new avenues for both theoretical and applied research. These cross-disciplinary developments are pushing the boundaries of what meshfree approaches can achieve in science and engineering. This minisymposium aims to bring together researchers from engineering, mathematics, computer science, and industry to present recent advances in meshfree and particle methods, with particular emphasis on interdisciplinary applications and innovative computational strategies. We welcome contributions on theoretical formulations, algorithmic development, and real-world implementations.

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