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ABSTRACT:

Update on Internal Length Gradient (ILG) Framework

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The ILG framework originally rooted on a simple enhancement of classical elasticity and plasticity to account for nonlocal effects through an extra Laplacian term multiplied by the square of an internal length parameter , is extended herein to account for fractional and fractal effects.Moreover, some initial results on the use of ILG to revisit some problems in particle mechanics and molecular dynamics, as well as electrodynamics and quantum mechanics, are outlined.

[1] E.C. Aifantis, Adv. Appl. Mech., 49, 1 (2016).
[2] E.C. Aifantis, Springer Tracts Mechan. Engng., 417 (2021).
[3] E.C. Aifantis, J. Mater. Sci., 9, 1 (2025).

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