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A standard experimental method for determining the material length scale based on modified couple stress theory

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## Highlights

- A standard experimental method for determining the intrinsic material length scale of modified couple stress theory is proposed.
- Material length scale parameter of modified couple stress theory is determined for two metallic materials: copper and titanium.
- The strength of size effects are compared between metallic and non-metallic materials.
- The influences of material properties (Young's modulus and mass density) on size effects are discussed.

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