Surface effect on buckling of microtubules in living cells using first-order shear deformation shell theory and standard linear solid model

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Highlights

- Axial buckling of taxol- and MAP-stabilized microtubules is investigated.
- Both surface and nonlocal effects are taken into consideration.
- SLS model is used to describe the viscoelastic surrounding cytoplasm.
- A good agreement is found between the results and available experimental data.
- Stabilizing microtubules with taxol reduces the critical buckling load.