

# Accepted Manuscript

Adaptive-scanning, Near-minimum-deformation Atomic Force  
Microscope Imaging of Soft Sample in Liquid: Live Mammalian Cell  
Example

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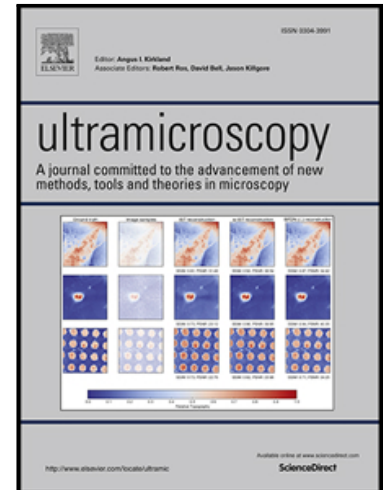
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**Highlights**

- A high-speed AFM imaging mode with near-minimum sample deformation is proposed.
- The scanning speed is adjusted adaptively to accommodate topography/force variations.
- A data-driven iterative control is integrated for high-speed tracking sample profile.
- The normal force set-point is adaptively adjusted near the minimal required value.
- Experimental imaging speed on live cells was increased over eight times.

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