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# Axially-offset DIC Microscopy for Quantitative Phase Imaging with Wavefront Shaping

**A novel axially-offset differential interference contrast (ADIC) microscopy method provides superior, artifact-free detection and fast data acquisition for imaging weakly scattering specimens, compatible with most existing optical microscopes.**

Quantitative phase imaging (QPI) is an emerging group of microscopy methods that detect weakly scattering and absorbing specimens, such as living cells, unstained tissues, or 2D nanomaterials. Most current QPI approaches, such as Nomarski or Zernike phase contrast microscopy, suffer from imaging artifacts caused by the inherent subtle mechanical vibrations and by the indirect recovery of phase information from image analysis. The research community will benefit from a versatile and simple QPI approach that is compatible to popular advanced optical microscopes used in modern biological and biomedical studies.

Researchers at Purdue University have developed a novel microscopy method called axially-offset differential interference contrast (ADIC) microscopy that does not suffer from the imaging artifacts encountered in current QPI approaches and supports high signal-to-noise detection and fast data aquisition. This technology has been demonstrated and proven to depict the detailed spatial distribution of the fibrils in mouse tail tissues.

**Advantages**:

-Removes image artifacts

-High signal-to-noise lock-in detection

-Compatible with most existing optical microscopes

Potential Applications:

-Bright field microscopy

**Technology ID**

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**Category**

Materials Science & Nanotechnology/Nanomaterial Characterization & Imaging Tools
Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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**View online**

-Nonlinear multimodal microscopy

-Photothermal microscopy

**TRL:** 4

**Intellectual Property:**

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