Submicron Resolution Broad View 2-D & 3-D Microscope ID# 2019-4921





Microscope in applicationary use

Technology Summary

Existing microscope optics make tradeoffs between the field of view and resolution. At the same time, modern CMOS sensors have reached over 100 million pixels in a single chip, well beyond the amount of information that can be recovered digitally with existing microscope optics. This invention provides an effective solution: the first optics capable of making use of large-format CMOS sensors with a diffraction-limited resolution matched to a far larger field of view than is presently available in high-magnification objective lenses. This invention provides the resolution of a 40x objective lens with a field of view of a 4x objective, and over 2 orders of magnitude improvement in field of view over commercial microscope optics for the same resolution.

Application & Market Utility

The new optics will allow for rapid image acquisition from large areas of samples with subcellular resolution for a wide range of new applications: in-situ monitoring and screening large cell culture and tissue samples in both transmission and fluorescence modes; rapid sample scanning in histology combined with machine learning to automate disease diagnosis; micro-CT with sub-cellular resolution for large biomedical samples including whole animals, human surgical pathology specimens, and materials science samples.

Next Steps

Working prototypes are being tested and validated in numerous applications. Patent pending. Seeking licensing opportunities.

TECHNOLOGY READINESS LEVEL 4-7

Seeking

Investment | Licensing | Research

Keywords

- Imaging
- Histology
- Medical Device
- Drug Discovery

Researchers

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