Technology Transfer Office

Method of Full-Color Optical Coherence Tomography

Researchers at the University of South Florida developed a method for surface and sub-surface imaging of tissues. This imaging method is applicable to the diagnosis of diseases, especially in the critical areas of optical coherence tomography (OCT), such as ophthalmic and dermatological imaging.

Modern optical microscopy and its applications in biomedical imaging are made possible in part by the optimization of related technologies: lasers, digital acquisition, and image processing. Advantages include: non-ionizing radiation, wide range of resolution, effective contrast mechanism, and compact but inexpensive instrumentation. The main thrust of development for modern microscopy is 3-dimensional (3D) microscopy, with every image plane sharply in focus. This is in contrast to conventional microscopy where the image of the in-focus plane is superposed with a blurred image of out of focus planes.

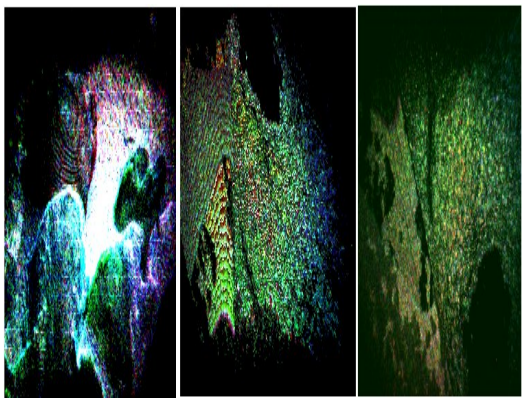
Unlike conventional microscopy, most 3D microscopy discards the natural color information of the object. However, in some of the critical application areas of OCT, the natural color and texture of top tissue layers provides vital information that enhances proper diagnosis.

This invention helps provide what is needed in the art: a full color 3D microscopic imaging systems and methods utilizing wide-field optical coherence tomography resulting in a machine capable of lateral and longitudinal resolution, subsurface penetration of diffuse media and full natural color representation.

ADVANTAGES:

- **Full natural color representation of object**
- **Non-ionizing radiation**
- **No need for pixel-by-pixel scanning of 3D object volume**
- **Use of low cost light sources such as LED or tungsten lamp**

3D Image View with Full Natural Color Representation



Wide-Field Optical Coherence Tomography (WFCOT) of a Leaf

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