

Imagine Optic™ to lead a consortium of leading research organizations to develop new techniques using adaptive optics for deep-tissue imaging

Imagine Optic will lead the MICADO (MICroscopy with ADaptive Optics) consortium to develop new technology using adaptive optics for deep-tissue imaging for applications in clinical research.

Paris, September 25, 2007 – As part of its ongoing commitment to expand the applications of adaptive optics in bioimaging, Imagine Optic will spearhead the MICADO (MICroscopy improved with ADaptive Optics) consortium that will unite France's leading experts in the fields of neuroscience and cellular imaging to develop new technology for detecting and treating neurological disorders.

MICADO is a 3-year project financed by the Agence National de la Recherche (ANR – France's National Research Agency) that will unite Imagine Optic, Europe's leading manufacturer of Shack-Hartmann wavefront analysis and adaptive optics products, with key researchers and institutions including:

- Claude Boccara from the Ecole Supérieure de Physique de Chimie Industrielles (ESPCI)
- Laurent Bourdieu and Jean-François Léger from the Neurobiology Laboratory at the Ecole Normale Supérieure (ENS)
- Emmanuel Beaufrepère from the Laboratoire d'Optique et de Biosciences (LOB – Laboratory of Optics and Biosciences)

The goal of the project is to go beyond the physical limitations of current techniques by developing new technology that will improve the resolution of OCT (Optical Coherence Tomography) and multiphoton microscopes (2-photon, third harmonic, etc.). Augmenting the resolution of these devices will respond to the urgent need to perform in vivo deep-tissue imaging in domains including neurology, developmental biology and biopsy.

When asked about the project's potential, consortium partner Claude Boccara responded "The work we are undertaking will open new horizons in a wide variety of domains. For example, using adaptive optics to capture deep-tissue images of cellular bodies will one day enable doctors to perform optical biopsies that may help save lives by reducing the number of interventions necessary to treat pathologies, including certain cancers, as well as reducing the time from diagnosis to treatment."

Until recently, the active components used in adaptive optics lacked the necessary correction power (stroke) to be used for bioimaging. Imagine Optic's adaptive optics technologies, including the mirao™ 52-d Electromagnetic Deformable Mirror, are perfectly suited to bioimaging applications. They overcome the issues that impede MEMS and other technologies from entering into this domain by providing the wavefront analysis and correction ability necessary to compensate for the wide-ranging specimen induced distortions (aberrations) that biologists must eliminate to capture clear images.

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Part of the consortium's work will be to develop an all-new wavefront sensor called an Optical Coherence Interferometer (OCI), complementary to Imagine Optic's HASO™ wavefront sensor, that will be able to differentiate between the light reflected by the specified target and errant light reflected back that confuses other devices. When asked about the new technology that will result from this collaboration, Xavier Levecq, team leader at Imagine Optic, said "Certain technologies, including confocal scanning microscopes, are not suitable for in vivo deep-tissue imaging because sufficiently amplifying the imaging source inevitably causes damage to the specimen. Using adaptive optics to enhance OCT and multi-photon microscopes for subcellular deep-tissue bioimaging will enable us to dramatically improve image quality at depths of several hundred microns without damaging the living tissue."

Imagine Optic is currently working with leading research institutions around the world to develop new applications for adaptive optics in bioimaging. The company's clients in this domain include the Sedat lab at the University of California at San Francisco, the Massachusetts Institute of Technology and the Howard Hughes Medical Institute.

The company will be exhibiting this week on booth E15 at OPTO in Paris, France's annual showcase for organizations at the forefront of optics and photonics research. For more information, please visit www.imagine-optic.com.

About Imagine Optic

Founded in Orsay, France in 1996, the company is Europe's leading provider of Shack-Hartmann wavefront sensing technologies for adaptive optics, quality control and optical measurement. In 2005, Imagine Optic introduced the world's first X-EUV wavefront sensor to respond to customer needs in this synchrotron metrology and nanolithography and, in 2007, the company released a completely renewed version of its award winning HASO sensor line as well as adaptive optics and companion software packages. It continues to be a leader in research and development with projects currently underway in the domains of free space communications and adaptive optics for high-power lasers.

Imagine Optics' clients are among the world's top companies and include Sony, Nikon, Thomson, Zeiss, NASA, the U.S. Air Force, Essilor, Thales Aliena Space, EADS, the European Southern Observatory, the European Space Agency (ESA), amongst others. In 2006, Imagine Optic realized a turnover of €2,4M and currently employs 23 highly qualified professionals in a variety of domains. If you would like to learn more about us, please visit www.imagine-optic.com.

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