Bridging molecular and cellular biology with optics (Presentation Video)

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ABSTRACT

Understanding the structure and function of living cells from the nano to the micron scale remains a grand challenge. While X-ray diffraction and electron microscopy reveal nanoscale information from cellular structures, they operate with lifeless specimens. By contrast, optical techniques are well suitable for studying live cells. However, the resolution of the far-field "linear" microscopy is approximately 300 nm, a manifestation of Heisenberg's uncertainty relation. Thus, pushing the biophotonics investigation toward the molecular scale is faced with significant challenges but also with unique opportunities. We will describe various principles dedicated to this goal and present some recent advances in phase sensitive measurements.

View presentation video on SPIE's Digital Library: http://dx.doi.org/10.1117/12.2179067.4093525328001

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