Contribution ID: **140** Type: **Talk**

【904】Gap plasmon resonance-enhanced high spatial resolution imaging by photothermal induced resonance in visible spectral range

Wednesday 28 August 2019 17:45 (15 minutes)

The method of infrared nanospectroscopy and high spatial resolution imaging by photothermal induced resonance (PTIR) proved its viability and utility for many studies. We discuss our results on development of the method in visible spectral range. Its performance was enhanced by both factors: the coincidence of the resonant frequency of an AFM tip dithering with the laser pulse repetition range, and plasmon gap resonance. In the visible, the latter is very sensitive to the properties, first of all thickness, of the sample studied, and this dependence may create a contrast mechanism for the imaging even in the case of inefficient light absorption. We present a few nm resolution images of chlorophyll a monolayers and amyloid fibrils.

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Session Classification: Biophysics, Medical Physics and Soft Matter

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