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### MAJOR RESEARCH INTERESTS

- Biomedical Raman Spectroscopy and Imaging
- Coherent Raman Scattering Microscopy
- Multiphoton and Higher Harmonic Generation Microscopy
- Nonlinear Fluorescence lifetime imaging
- Near-Field Optics and Nanoscopy
- Surface- and Tip-enhanced Raman Spectroscopy

### SELECTED PUBLICATIONS

1. Bergholt MS, Zheng W, Ho KY, Teh M, Yeoh KG, So JBK, Shabbir A, **Huang Z\***, Fiber-optic confocal Raman spectroscopy for real-time in vivo diagnosis of dysplasia in Barrett's esophagus. *Gastroenterology*, 146(1), 27-32 (2014).
2. J Lin, K Er, W Zheng, **Z Huang\***, Radially polarized tip-enhanced near-field coherent anti-Stokes Raman scattering microscopy for vibrational nano-imaging, *Appl. Phys. Lett.*, 103, 083705 (2013).
3. M Bergholt, S Duraipandian, W Zheng, **Z Huang\***, Multivariate reference technique for quantitative analysis of fiber-optic tissue Raman spectroscopy, *Anal. Chem.* 85, 11297-11303 (2013).
4. J Lin, S Pan, W Zheng, **Z Huang\***, Polarization-resolved second-harmonic generation imaging for liver fibrosis assessment without labeling, *Appl. Phys. Lett.* 103, 173701 (2013).
5. P Upputuri, J Lin, G Li, X Liu, H Wang, **Z Huang\***, Circularly Polarized Coherent Anti-Stokes Raman Scattering Microscopy, *Optics Letters*, 38(8), 1262-1264 (2013).
6. Wang J, Bergholt MS, Zheng W, **Huang Z\***, Development of a beveled fiber-optic confocal Raman probe for enhancing in vivo epithelial tissue Raman measurements at endoscopy. *Opt Lett*, 38(13), 2321-2323 (2013).
7. S Duraipandian, W Zheng, J Ng, Jeffrey Low, A Ilanacheran, **Z Huang\***, Simultaneous fingerprint and high wavenumber confocal Raman spectroscopy enhances early detection of cervical precancer in vivo, *Analytical Chemistry*, 84, 5913-5919 (2012).
8. J Lin, F Lu, W Zheng, S Xu, D Tai, H Yu, **Z Huang\***, Assessment of liver steatosis and fibrosis in a bile duct ligation rat model using integrated coherent anti-Stokes Raman scattering and multiphoton imaging technique, *Journal of Biomedical Optics*, 16(11), 116024 (2011).
9. C Yuen, W Zheng, **Z Huang\***, Low-level detection of anti-cancer drug in blood plasma using microwave-treated gold-polystyrene beads as surface-enhanced Raman scattering substrates, *Biosensors and Bioelectronics*, 26, 580-584 (2010).
10. K Lin, W Zheng, **Z Huang\***, Integrated autofluorescence endoscopic imaging and point-wise spectroscopy for real-time in vivo tissue measurements, *Journal of Biomedical Optics*, 15 (4), 040507 (2010).
11. F Lu, W Zheng, J Lin, **Z Huang\***, Integrated coherent anti-Stokes Raman scattering and multiphoton microscopy for biomolecular imaging using spectral filtering of a femtosecond laser, *Applied Physics Letters*, 96(14), 133701 (2010)
12. **Huang Z\***, Teh SK, Zheng W, Mo J, Lin K, Shao X, Ho KY, Teh M, Yeoh KG, Integrated Raman spectroscopy and trimodal wide-field imaging techniques for real-time in vivo tissue Raman measurements at endoscopy. *Opt Lett* 34: 758-760 (2009).
13. F Lu, W Zheng, **Z Huang\***, Coherent anti-Stokes Raman scattering microscopy using tightly focused radially polarized light, *Optics Letters*, 34(12), 1870-1872 (2009).
14. J Lin, H Wang, W Zheng, F Lu, C Sheppard, **Z Huang\***, Numerical study of effects of light polarization, scatterer sizes and orientations on near-field coherent anti-Stokes Raman scattering microscopy, *Optics Express*, 17 (4), 2423-2434 (2009).
15. F Lu, W Zheng, and **Z Huang\***, Heterodyne polarization coherent anti-Stokes Raman scattering microscopy, *Appl Phys Lett*, 92 (12), 123901 (2008).