

Dr. Rajapandiyan Panneerselvam

Postdoctoral Fellow
Department of Chemistry
University of Leipzig, Germany
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Research Employment:

Post-Doc Fellow, University of Leipzig, **Germany** (2017-present)

Advisor: Prof. Detlev Belder

Post-Doc Fellow, University of Alabama at Birmingham, **USA** (2016-2017)

Advisor: Prof. Richard A. Dluhy

Post-Doc Fellow, State Key Laboratory of Physical Chemistry of Solid Surfaces, Xiamen University, **China** (2014-2016)

Advisor: Prof. Zhong-Qun Tian

Education:

Ph.D. (2014) - Chemistry, National Chung-Hsing University, Taichung, Taiwan (2009-2014)

Advisor: Prof. Jyisy Yang

Field: Physical Chemistry and Analytical Chemistry

Thesis: Droplet Surface-Enhanced Raman Spectroscopy for Chemical and Biomolecule Analysis

M.Sc. (2009)- Analytical Chemistry, University of Madras, India

B.Sc. (2007) - Chemistry, PSG College of Arts & Science, Bharathiar University, India

Research Interests:

Surface-enhanced Raman spectroscopy, microfluidics, nanochemistry, plasmonics, and spectroelectrochemistry

Awards and honors:

2017 - Second prize for exceptional performance in the 14th Annual Postdoctoral day, The University of Alabama at Birmingham, Alabama, USA, 20/02/2017

2009 - University 2nd rank in M.Sc. - Chemistry

Publications:

Total no of research publications: 22

Popular Articles: 7

Conference paper: 6

Invited talks: 2

1. Panneerselvam, R. *et al.* A rapid and simple chemical method for the preparation of Ag colloids for surface-enhanced Raman spectroscopy using the Ag mirror reaction. *Vib. Spectroscop.* (2018)
2. Panneerselvam, R. *et al.* Surface-enhanced Raman spectroscopy: Bottlenecks and future directions. *Chem. Commun.* 54, (2018).
3. Yang, J.-L. *et al.* Quantitative detection using two-dimension shell-isolated nanoparticle film. *J. Raman Spectrosc.* **48**, (2017).
4. Li, J.-F., Zhang, Y.-J., Ding, S.-Y., Panneerselvam, R. & Tian, Z.-Q. Core-shell nanoparticle-enhanced raman spectroscopy. *Chem. Rev.* **117**, (2017).
5. Chen, Y.-L., Panneerselvam, R., Wu, D.-Y. & Tian, Z.-Q. Theoretical study of normal Raman spectra and SERS of benzyl chloride and benzyl radical on silver electrodes. *J. Raman Spectrosc.* **48**, (2017).
6. Li, C.-Y. *et al.* In-situ electrochemical shell-isolated Ag nanoparticles-enhanced Raman spectroscopy study of adenine adsorption on smooth Ag electrodes. *Electrochim. Acta* **199**, (2016).
7. Wen, B.-Y. *et al.* Shell-isolated nanoparticle-enhanced Raman spectroscopy study of the adsorption behaviour of DNA bases on Au(111) electrode surfaces. *Analyst* **141**, (2016).
8. Zhang, Y.-J. *et al.* Probing the Electronic Structure of Heterogeneous Metal Interfaces by Transition Metal Shelled Gold Nanoparticle-Enhanced Raman Spectroscopy. *J. Phys. Chem. C* **120**, (2016).
9. Zhao, Y. *et al.* A facile method for the synthesis of large-size Ag nanoparticles as efficient SERS substrates. *J. Raman Spectrosc.* **47**, (2016).
10. Peng, X. *et al.* Microwave-Assisted Synthesis of Highly Dispersed PtCu Nanoparticles on Three-Dimensional Nitrogen-Doped Graphene Networks with Remarkably Enhanced Methanol Electrooxidation. *ACS Appl. Mater. Interfaces* **8**, (2016).
11. Lin, S.-S. *et al.* Stable 16.2% Efficient Surface Plasmon-Enhanced Graphene/GaAs Heterostructure Solar Cell. *Adv. Energy Mater.* **6**, (2016).
12. Tian, X.-D. *et al.* Self-assembly of subwavelength nanostructures with symmetry breaking in solution. *Nanoscale* **8**, (2016).
13. Ding, S.-Y. *et al.* Nanostructure-based plasmon-enhanced Raman spectroscopy for surface analysis of materials. *Nat. Rev. Mater.* **1**, (2016).
14. Dong, J.-C., Panneerselvam, R., Lin, Y., Tian, X.-D. & Li, J.-F. Shell-Isolated Nanoparticle-Enhanced Raman Spectroscopy at Single-Crystal Electrode Surfaces. *Adv. Opt. Mater.* **4**, (2016).
15. Cabello, G., Chen, X.-J., Panneerselvam, R. & Tian, Z.-Q. Potential dependent thiocyanate adsorption on gold electrodes: a comparison study between SERS and SHINERS. *J. Raman Spectrosc.* **47**, (2016).
16. Li, J.-F. *et al.* Electrochemical Shell-Isolated Nanoparticle-Enhanced Raman Spectroscopy: Correlating Structural Information and Adsorption Processes of Pyridine at the Au(hkl) Single Crystal/Solution Interface. *J. Am. Chem. Soc.* (2015). doi:10.1021/ja513263j
17. Rajapandiyan, P., Tang, W.-L. & Yang, J. Rapid detection of melamine in milk liquid and

- powder by surface-enhanced Raman scattering substrate array. *Food Control* (2015). doi:10.1016/j.foodcont.2015.03.028
18. Li, C.-Y. *et al.* ‘Smart’ Ag Nanostructures for Plasmon-Enhanced Spectroscopies. *J. Am. Chem. Soc.* **137**, (2015).
 19. Li, C.-Y. *et al.* In Situ Monitoring of Electrooxidation Processes at Gold Single Crystal Surfaces Using Shell-Isolated Nanoparticle-Enhanced Raman Spectroscopy. *J. Am. Chem. Soc.* **137**, (2015).
 20. Zhang, W. *et al.* Large scale synthesis of pinhole-free shell-isolated nanoparticles (SHINs) using improved atomic layer deposition (ALD) method for practical applications. *J. Raman Spectrosc.* **46**, (2015).
 21. Rajapandiyam, P. & Yang, J. Photochemical method for decoration of silver nanoparticles on filter paper substrate for SERS application. *J. Raman Spectrosc.* **45**, 574–580 (2014).
 22. Rajapandiyam, P. & Yang, J. Sensitive cylindrical SERS substrate array for rapid microanalysis of nucleobases. *Anal. Chem.* **84**, 10277–10282 (2012).

Book Chapters:

1. Li, J.-F., Panneerselvam, R. & Tian, Z.-Q. *Advances in electrochemical science and engineering. Volume 17, Nanopatterned and nanoparticle-modified electrodes.*
2. Li, J.-F., Panneerselvam, R. & Tian, Z.-Q. *Shell-isolated nanoparticle-enhanced Raman spectroscopy. Recent Developments In Plasmon-Supported Raman Spectroscopy: 45 Years of Enhanced Raman Signals* (2017). doi:10.1142/9781786344243_0008

Poster Presentations:

1. Rajapandiyam, P, Xiao Li, and Richard A. Dluhy “Filter paper SERS substrates for biomolecules detection” Pittcon Conference, March 4-9, 2017 (Chicago, **USA**)
2. Rajapandiyam, P, Hungchen Emilie Yen, and Yang, J, “Trace Analysis of Small Volume of Plant Fluids by Surface-Enhanced Raman Scattering with Cylindrical SERS Substrates” Pittcon Conference, March 12-15, 2014 (Florida, **USA**)
3. Rajapandiyam, P, and Yang, J, “SERS Detection of Trace Melamine Using Photochemically Prepared AgNPs Attached Filter Paper Substrates” International Conference of Advanced Vibrational Spectroscopy 7 (ICAVS 7), August 20-25, 2013 (Kobe, **Japan**)
4. Rajapandiyam, P, and Yang, J, “Photochemical Preparation of Silver Nanoparticles on Filter Paper Substrates for SERS” Annual Meeting of Chemical Society, December, 2012 (Tainan, **Taiwan**)
5. Rajapandiyam, P, and Yang, J, “A Facile Approach for the Analysis of Aqueous solutions by SERS” Pittcon Conference, March 12-15, 2012 (Florida, **USA**)
6. Rajapandiyam, P, and Yang, J, “Optical Fiber Array as SERS Substrates for Microanalysis of Aqueous Samples” Annual Meeting of Chemical Society, December, 2011 (Hsinchu, **Taiwan**)

Participation:

1. Attended “Onsite Appraisal for 2177 Project (2.5 million Euro)” 7th March 2018, Leipzig, **Germany**.
2. Attended “28th Doktoranden Seminar Hohenroda” 7–9 January, 2018, Hohenroda, **Germany**.
3. Attended “2016 International Symposium on Analytical Chemistry Frontiers & China-US Analytical Chemistry Workshop,” 3–6 June, 2016, Xiamen University, **China**.

4. Attended “Chemical Reactions under External Fields- Nanoplasmonics and Nanospectroscopy,” 2–6 April, 2016, Xiamen, **China**. (Martin Moskovits lecture)
5. Attended three-day lectures on “Fundamentals of Electrochemical Energy Storage Systems and Applied Electrochemistry,” 29–31 March, 2016, Xiamen University, **China**.
6. Attended “Nobel Laureate Lecture Series- Eric Betzig” 2016-03-24, Xiamen University, **China**.
7. Attended “The 8th International Workshop on Scanning Electron Chemical Microscopy,” 9–12 October 2015, Xiamen University, **China**.
8. Attended “Forum on Frontiers of Science & Technology,” 6–7 August 2015, Xiamen University, **China**. (Nobel laureate lecture - Konstantin Novoselov)
9. Attended “Raman fest,” 6–8 May 2015, Xiamen University, **China**.
10. Attended “Faraday Discussions 176,” 27–29 October 2014, Xiamen University, **China**.
11. Attended “Catalysis and Sensing for Our Environment Symposium (CASE)” 8–9 November 2014, Xiamen, **China**.

Other IDs

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