

## **SOUMITRA GHOSHROY**

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### **Current Position**

Director, Electron Microscopy Center, University of South Carolina, Columbia, SC  
Research Professor, Department of Biological Sciences

### **Research Interests**

Electron microscopy, plant cell structure and physiology, cellular and structural aspects of plant-virus interaction.

### **Education and Post Doctoral Training**

1993 Ph.D. (Biology), University of New Hampshire, Durham NH  
1988 MS (Biological Sciences), Illinois State University, Normal, IL  
1998-99 Post Doctoral Fellow, Department of Plant Sciences, University of Arizona, Tucson, AZ  
1994-97 Post Doctoral Associate, Department of Biochemistry and Cell Biology, SUNY Stony Brook, NY  
1993-94 Post Doctoral Associate, Department of Structural Biology, Brandeis University, Waltham, MA

### **Professional Experience**

2011- Research Professor, Biology, Director, Electron Microscopy Center, University of South Carolina  
2007-2010 Research Associate Professor, Biology, Director, Electron Microscopy Center, University of South Carolina  
1999-2007 Research Associate Professor, Biology, Director, Electron Microscopy Lab, New Mexico State University

### **Selected Awards/Grants**

2005 Equipment Grant, Major Research Instrumentation, National Science Foundation, \$463421.00  
2005 A virtual reality framework for bio cell manipulation, Bio Sciences Cluster Grant, NMSU, \$25,000.00  
2001 Research Mini Grant, Arts & Sciences Research Center, New Mexico State University, \$3000.00  
1998 NSF Research Training Grant Post Doctoral Fellowship, University of Arizona, USA  
1990 Sigma Xi Scientific Research Society, USA, Graduate Student Research Award

### **Courses Taught**

2008- Biological Electron Microscopy,  
Guest Lectures: Cell and Molecular Biology, Department of Biological Sciences, Analytical Chemistry  
University of South Carolina  
  
1999-2006 Special Topics in Microscopy, Biological Electron Microscopy, Structure and Function of Plants  
Guest Lectures: Agrosience Technology, Forensic Chemistry  
New Mexico State University

### **Professional Society Membership**

Microscopy Society of America and Sigma Xi Scientific Research Society

### **Review Panel/Editorial Board Membership**

2011- Journal of Bioprocessing and Biotechniques

2006- National Science Foundation Panelist  
2004 North Carolina Biotechnology Development Corporation

### Selected Publications

1. Alkhatib R., Creamer R., Lartey R. T., and **Ghoshroy S.** (2011) Effect of Lead (Pb) on the Systemic Movement of RNA Viruses in Tobacco (*Nicotiana tabacum* var. Turkish). *Plant Cell Rep*; 30(8): 1427-1434
2. Wu L., Lee A., Niu Z., **Ghoshroy S.**, and Wang Q. (2011) Visualizing Cell Extracellular Matrix (ECM) Deposited by Cells Cultured on Aligned Bacteriophage M13 Thin Films. *Langmuir* 27 (15): 9490–9496
3. Wu L., Zang L J., Lee A., Niu Z., Horvath G. C., Braxton V., Wibowo A. C., Bruckman M. A., **Ghoshroy S.**, zur Loye H-C., Li X., and Wang Q. (2011) Electrospinning fabrication, structural and mechanical characterization of rod-like virus-based composite nanofibers. *J. Mater. Chem.* 21: 8550-8557
4. Wu L., Tao L., Blom D., Zhao J., **Ghoshroy S.**, and Wang Q. (2011) Synthesis and electron microscopic analysis of the self-assembly of polymer and ferritin core-shell structures; in press. *Microscopy Res. and Tech.*
5. Sabo-Attwood T., Unrine J. M., Stone J. W., Murphy C. J., **Ghoshroy S.**, Blom D., Bertsch P. M., and Newman L. (2011) Uptake, distribution and toxicity of gold nanoparticles in tobacco (*Nicotiana xanthi*) seedlings. In press. *Nanotoxicology*
6. Al-Khatib R., Maruthavanan J., **Ghoshroy S.**, Steiner R., Sterling T., Creamer R. Physiological and Ultrastructural Effects of Lead on Tobacco (*Nicotiana tabacum* var. turkish). Accepted; *Biolog. Planta.*
7. Tao L., Wu L., Suthiwangcharoen N., Bruckman M. A., Cash D., Hudson J. S., **Ghoshroy S.**, and Wang Q. (2009) Controlled Assembly of Rodlike Viruses and Polymer. *Chem. Commun.* 2869-2871
8. Bagwell C. E., Milliken C. E., **Ghoshroy S.**, and Blom D. A (2008) Intracellular Copper Accumulation Enhances the Growth of *Kineococcus radiotolerans* during Chronic Irradiation. *Appl. Envir. Microbiol.* 74: 1376-1384.
9. Lartey R.T., Ghoshroy K., and **Ghoshroy S.** (2008) Association of selective deposition of (1→3)- $\beta$ -glucan in floral tissues with restricted movement of turnip vein-clearing virus in *Arabidopsis*: A possible mechanism for non-seed transmission. *Plant Pathology J.* 7(2):120-130
10. Deng S., Upadhyayula V. K. K., **Ghoshroy S.**, Nair V. K., Smith G. B., and Mitchell M. C. (2008) Single-Walled Carbon Nanotubes as Fluorescence Biosensors for Pathogen Recognition in Water Systems. *Res. Lett. in Nanotech.*; Volume 2008 (2008)
11. Upadhyayula V. K. K., Deng S., Mitchell, M. C., Nair V. K, Smith G. B., and **Ghoshroy S.** (2008). Adsorption kinetics of Escherichia coli and Staphylococcus aureus on single-walled carbon nanotube aggregates. *Water Sc. and Tech.* 58(1): 179–184
12. Lee L.A., Wu L., Bruckman M.A., Niu, Z., **Ghoshroy S.**, Wang Y., and Wang Q. (2008) Modulating cell adhesion and spreading with surfaces coated plant viruses. *Interactive Biology, Invited.*
13. Lartey R.T., Lenssen A.W., Evans R.G., and **Ghoshroy S.** (2007) Comparative structural study of leaf spot disease of safflower and sugar beet by *Cercospora beticola*. *Plant Pathology J* 6(1): 37-43
14. Ortega J. L., Temple S. J., Bagga S., **Ghoshroy S.**, and Sengupta-Gopalan C. (2004) Biochemical and molecular characterization of transgenic *Lotus japonicus* plants constitutively over-expressing a cytosolic glutamine synthetase gene. *Planta* 219(5): 807-818

### Book Chapters

1. Lartey, R.T., **Ghoshroy S.**, Caesar-TonThat, TC., Lenssen, A.W and Evans, R.G. (2009). Relations of *Cercospora beticola* with host plants and fungal antagonists. In: Robert T Lartey, John J Weiland, Lee Panella, Pedro W. Crous and Carol E Windels (eds). *Cercospora Leaf Spot of Sugar Beet*, American Phytopathological Society Press. (In press)

2. **Ghoshroy S.** (2004) Characterization of plant viruses using microscopy techniques. *Emerging Concepts in Plant Health Management*, ed. R.T. Lartey and A. Caesar.
3. Lartey R.T., **Ghoshroy S.**, Sheng J., and Citovsky V. (1997) Transport through plasmodesmata and nuclear pores: cell-to-cell movement of plant viruses and nuclear import of *Agrobacterium* T-DNA. In *Molecular Aspects of Host-Pathogen Interaction*, ed. M.A. McCrae, J.R. Saunders, C.J.

### Review Article

1. **Ghoshroy S.**, Lartey R.T., Sheng J., and Citovsky V. (1997) Transport of proteins and nucleic acids through plasmodesmata. *Annual Review of Plant Physiology and Plant Molecular Biology* 48: 27-50.

### Selected Meeting Proceedings

1. Cisneros D., Ghoshroy K., and **Ghoshroy S.** (2011) Imaging Uncoated Plant Seeds with In-lens and Secondary Electron Detectors in a High Vacuum Field Emission SEM. *Proceedings of the Society of Microscopy and Microanalysis*, Nashville, TN
2. Wu L., Tao L., Blom D., Zhao J., **Ghoshroy S.**, and Wang Q. (2009) High Resolution TEM Imaging and Analysis of the Core-shell Assembly of Ferritin- Poly 4-vinyl Pyridine. *Proceedings of the Society of Microscopy and Microanalysis*, Richmond, VA (**Selected for MSA Presidential Award to Wu**)
3. Ghoshroy K., Kozlin K. D., **Ghoshroy S.**, Lartey R. T., Szoke K. A., and Szoke K. B. Investigation of Host Range, Infectivity, and Spread of Turnip Vein Clearing Virus and a Possible Mechanism for Non-Seed Transmission. *Proceedings of the Annual Meeting of the Association of Southeastern Biologists*, Vol 56(3):350, July 2009
4. Al-Khatib R., Zhao J., Blom D., Ghoshroy K., Creamer R., and **Ghoshroy S.** (2008) Microscopic analysis of lead accumulation in tobacco (*Nicotiana tabacum* var. turkish) roots. *Proceedings of Microscopy and Microanalysis*, Albuquerque, NM.  
(**2<sup>nd</sup> place poster award in the Biological Applications of Microscopy and Microanalysis category to Al-Khatib**)
5. Lartey, R. T., **Ghoshroy**, S., Caesar T., Lenssen, A.W. and Evans, R. G., (2007) Leaf spot of *Cercospora beticola*: A new disease of safflower. Symposium on: New and Emerging Diseases in the Pacific Division Region. Pacific Division, American Phytopathological Society, Boise, ID.
6. Lartey, R. T., **Ghoshroy**, S., Caesar T., Evans, R. G. and Lenssen, A.W. (2007). Biological relations of *Cercospora beticola* with host plants and fungal antagonists. 1<sup>st</sup> International Symposium on *Cercospora* Leaf Spot of Sugar Beet. Annual Meeting. American Phytopathological Society, Quebec, Canada.
7. Nair V., **Ghoshroy S.**, and Nishiguchi M.K.(2006) Localization and distribution of *Vibrio fischeri* symbionts in *Euprymna tasmanica* light organ affect symbiosis, *Microscopy and Microanalysis Annual Meeting*, Chicago, IL.
8. Gustafson J.E., Winnett D. C., Katzif S., Zhu K., Girard K.R., Nair V., **Ghoshroy S.**, Wilkinson B. J., and Shafer W.M. (2006). House cleaner-tolerant mutants of *Staphylococcus aureus* demonstrate increased resistance to a cathepsin antimicrobial peptide: roles for altered cell wall physiology and *sarA*.. *American Society of Microbiology Annual Meeting*, Orlando, FL
9. Lartey, R. T., Caesar-TonThat, TC., Sol, N. I. and **Ghoshroy**, S. (2005). Additional evidence of Safflower (*Carthamus tinctorius*) as an alternate host to *Cercospora beticola*. *Proceedings, 33<sup>rd</sup> Biennial Meeting, American Society of Sugarbeet Technologists*. **33**:144-150.
10. Lartey, R. T., Sol, N. I. and **Ghoshroy**, S. (2005). Additional evidence of Safflower (*Carthamus tinctorius*) as an alternate host to *Cercospora beticola*. (Abstracts), *J. Sugar Beet Research*. **42**:52

11. Lartey, R.T., Kersey, S. and **Ghoshroy, S.** (2005). A light and scanning electron microscopic study of progression of *Cercospora beticola* infection in sugar beet and safflower. Abstracts, XII International Congress on Molecular Plant Microbe Interactions, Merida, México. Book of Abstracts, IS-MPML. p129.
12. Lartey, R.T., Kersey, S. and **Ghoshroy, S.** (2005). A light and scanning electron microscopic study of progression of *Cercospora beticola* infection in sugar beet and safflower. Abstracts, XII International Congress on Molecular Plant-Microbe Interactions, Cancun, México 33:144-150
13. O'Donnell B., Garrido P., Kersey S., and **Ghoshroy S.** (2004) Structural alteration of *Arabidopsis thaliana* leaf vasculature and restricted virus systemic movement in response to auxin transport inhibition. Microscopy Society of America; Savannah, GA (**Selected for MSA presidential Award to O'Donnell and 2<sup>nd</sup> place poster award in the Biological Applications of Microscopy and Microanalysis category**)
14. Sanogo S., Carpenter J., and **Ghoshroy S.** (2004) Soil water saturation and infection by *Phytophthora capsici*. The American Phytopathological Society, CA
15. O'Donnell B., Kersey S., Gallegos L., Barrow J., and **Ghoshroy S.** (2003) Black grama grass under the microscope; anatomical features of a native plant from Southwestern United States. Annual Biology Symposium; New Mexico State University
16. Randall J. J., Sutton D., **Ghoshroy S.**, Bagga S., and Kemp J. D. (2003) Co-ordinate expression of  $\beta$  and  $\gamma$  zeins in transgenic tobacco. American Society of Plant Biologists; Honolulu, HI
17. Gallegos, L, Fambrough K.C., Lartey R.T. and **Ghoshroy, S.** (2002) Inhibition of turnip vein clearing virus movement in reproductive structures of *Arabidopsis thaliana*; a microscopic study. Microscopy Society of America; Quebec City, Canada (**Selected for MSA Presidential Award to Gallegos and 1<sup>st</sup> place poster award in the Biological Applications of Microscopy and Microanalysis category**)
18. Rodriguez-Uribe L, **Ghoshroy S.**, and O'Connell M. (2002) Subcellular localization of a novel transcription factor in watered and drought stressed *Phaseolus acutifolius*. Microscopy Society of America; Quebec City, Canada
19. Fambrough, K.C., and **Ghoshroy, S.** (2001) Drought Induced structural changes in developing chloroplasts of jalapeno pepper (*Capiscum annuum*). Microscopy Society of America; Long Beach, CA (**Selected for MSA Presidential Award to Fambrough**)