

# CURRICULUM VITA

## ROBERT W. ROBERSON

### ADDRESS

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### EDUCATION

1979 B.S.- Stephen F. Austin University, Nacogdoches, TX  
1983 M.S.- Stephen F. Austin University, Nacogdoches, TX; Dr. Charles W. Mims, Advisor  
1989 Ph.D.- University of Georgia, Athens, GA; Dr. Melvin S. Fuller, Advisor

### POSITIONS HELD

2005-current Adjunct Faculty, Department of Biology, University of Texas at El Paso.  
2005-current Adjunct Research Scientist; Centro de Investigacion Cientifica y de Educacion Superior de Ensenada, BC (CICESE), Ensenada, Baja California, Mexico  
1995-current Associate Professor of School of Life Sciences and Co-Director of Life Sciences Bioimaging Complex, ASU  
1989-1995 Assistant Professor of Botany and Supervisor of Life Sciences Electron Microscopy Facility, ASU  
1985-1989 Electron Microscopy Technician, University of Georgia, Athens, GA  
1983-1985 Electron Microscopy Technician, Medical School of Georgia, Augusta, GA  
1980-1983 Teaching Assistant, Stephen F. Austin University, Nacogdoches, TX  
1979-1980 Science Instructor (Seventh Grade), Lufkin, TX

### ACADEMIC COMMITTEES AND SERVICES

2005- CSSS Goldwater Facilities Advisory Committee; The Center for Solid-State Science, ASU  
2004-2006 Bioimaging Search Committee (co-chair, SoLS)  
2005 Honors and Awards Committee (SoLS, ASU)  
2004-present Executive Committee for Computational Biology Concentration (ASU)  
2001-2003 College of Liberal Arts and Sciences Committee on Quality of Instruction (ASU)  
2001-2002 Molecular and Cellular Biology Graduate Studies Committee (ASU)  
1999-2002 Undergraduate Plant Biology Advising Committee (ASU)  
1999-2001 Executive Committee for the Molecular and Cellular Biology Program (ASU)  
1995-1997 Director of Plant Biology Graduate Program (ASU)  
1994-1996 Executive Committee for the Molecular and Cellular Biology Program (ASU)  
1993-1997 Plant Biology Computer Committee (ASU)  
1991-1994 Departmental Affirmative Action Committee (ASU)  
1990-91/1995/95 Plant Biology Departmental Seminar (ASU)

### PROFESSIONAL COMMITTEES, SERVICE, AND AWARDS

2005 Organizer and co-chair (Gero Steinberg): "The Fungal Microtubules". XXIII Fungal Genetics Conference, March. Asilomar, Pacific Grove, CA  
2005 NSF Panel Member: Multi-user Biological Equipment and Instrumentation Resources, February 24-25  
2005-2007 Associate Editor Mycologia  
2004-present Mycological Society of America Genetics and Cell Biology Committee  
2004-2005 President for Arizona Imaging and Microanalysis Society  
2004 NSF Panel Member: Multi-user Biological Equipment and Instrumentation Resources, February 4-6  
2003-2006 Advisory Committee for International Fungal Biology Conference  
2003 Mycological Society of America Fellow

- 2003 Symposium organizer and co-chair (Nick Read): "Fungal Cell Biology". Mycological Society of America and British Mycological Society Meeting, July 26-31. Asilomar, Pacific Grove, CA
- 2003 Symposium organizer and co-chair (Xin Xang): "The Fungal Cytoskeleton". XXII Fungal Genetics Conference, March 18 - 23. Asilomar, Pacific Grove, CA
- 2002 Guest Editor: Fungal Genetics and Biology (Volume 37)--Special Issue Honoring the work of Dr. Salomon Bartnicki-Garcia.
- 2002 Symposium organizer and chair: "Structural Fungal Biology". VIII Fungal Biology Conference; December 2-6, 2002, Guanajuato, Mexico
- 2001-2002 Member of the International Scientific Program Committee for the VIII Fungal Biology Conference; December 2-6, 2002, Guanajuato, Mexico
- 2001-2004 Counsel member representing Cell Biology for the Mycological Society of America
- 2001 NSF Panel Member: Instrument Development for Biological Research; December 13-14, 2001
- 2001 Symposium organizer and chair: "The Cell Biology of Fungi". Mycological Society of America, August 25-29, Salt Lake City, UT
- 2000-2005 Associate Editor Mycological Research
- 2000-2002 Associate Editor Mycologia
- 1996 Symposium organizer and chair: "New Techniques in the Analysis of Cell Structure and Function. Arizona Imaging and Microanalysis Society. University of Arizona, Tucson, AZ. March
- 1995 Member of External Review Team for the Department of Biological Sciences Graduate and Undergraduate Programs at the University of Texas - El Paso.
- 1992-1993 President, Arizona Society for Electron Microscopy and Microprobe Analysis.
- 1992-1993 National Science Foundation Task Force on Cell Surfaces (Contributing Member)
- 1991 Symposium organizer and chair: "Hyphal Tip Growth and Morphological Events". Mycological Society of America, August 4-9, 1991, San Antonio, Texas.
- 1989-1993 Awards Committee, Mycological Society of America; 1992-1993 Chair.
- 1989-1991 Arizona State University Representative, Arizona Society for Electron Microscopy and Microprobe Analysis.

#### **PROFESSIONAL SOCIETY MEMBERSHIP**

Mycological Society of America  
 Microscopy Society of America  
 Arizona Society for Electron Microscopy and Microbeam Analysis  
 American Society for the Advancement of Science

#### **GRADUATE STUDENT SUPERVISION (current):**

Maho Uchida (SoLS, PhD): Dissertation title: "Cell growth and morphogenesis in fungal hyphae"  
 Silvia Lucrecia Ramos García  
 Departamento de Microbiología  
 CICESE

#### **PROGRAM COMPLETION BY GRADUATE STUDENTS:**

Martin Hohmann-Marriott (PhD, co-advisor with Bob Blankenship)  
 Scott Bates (Plant Biology, MS): Thesis title: "The distribution and evolution of puffball fungi in Arizona"  
 Laura Crews (Molecular and Cellular Biology, MS): Thesis title: "Antifungal activities of 1-(3', 4', 5' -trimethoxyphenyl)-2-nitro-ethylene", Graduation date: August 2001.  
 Dennis McDaniel (PhD): Dissertation title: "The role of the Spitzenkörper in hyphal growth of fungi", Graduation date: August 2000.  
 Karen Fisher, (MS): Thesis title: "Membrane development during zoospore formation in *Allomyces*", Graduation date: August 1999.  
 Matthew Garrett, MS. Thesis title: "The effects of pisatin on the growth and ultrastructure of hyphal tip cells in *Nectria haematococca*" Graduation date: May 1998.  
 Srijayanthi Srinivasan, MS. Thesis title: "Functional, organizational, and biochemical analysis of actin in

the hyphal tip cells of *Allomyces macrogynus*" Graduation date: December 1994.  
David Lowry, MS. Thesis title: "The distribution and function of the cytoskeleton during zoospore formation in *Allomyces macrogynus*" Graduation date: December 1995.  
Marie Vargas (Botany, PhD): Advisor. Dissertation title: "Cell Morphogenesis in *Allomyces*" Graduation date: May 1997.  
Michael W. Harding, MS. Thesis title: "Host-Parasite Relationships of Uredinidal Infections in Fast and Slow Rusting *Cultivars* of Bean" Graduation date: December 1996.

#### **AWARDS AND HONORS OF GRADUATE STUDENTS:**

Chris Altamirano Best Student Presentation. Arizona Imaging and Microanalysis Society, Tucson, AZ. 2006. "Organization and dynamics of microtubules during hyphal growth in *Rhizopus*".  
Martin Hohmann-Marriott: Young Investigator Certificate of Excellence, Gordon Conference on Photosynthesis, Smithfield, RI, July 2005  
Dennis McDaniel. Outstanding Student Presentation. Mycological Society of America, Puerto Rico, 1998. " $\gamma$ -Tubulin localization in hyphae of *Allomyces*".  
Michael W. Harding. Outstanding Student Poster Award. Mycological Society of America, Indianapolis, IN. 1996. "Uredinia development and host-parasite relationships in slow-rusting of bean"  
David Lowry. Outstanding Student Poster Award. Mycological Society of America, San Diego, Ca. 1995. "The effects of nocodazole and cytochalasin D on cytoplasmic cleavage in zoosporangia of *Allomyces macrogynus*: an ultrastructural study".  
Maria Vargas. Outstanding Student Paper Award. Mycological Society of America, Portland, OR. 1992. "The apical body in hyphal tips of *Allomyces macrogynus*".

#### **UNDERGRADUATE SUPERVISION**

1992 Harry Pittman, BOT 499  
1994 Kieth Falls, BOT 499  
1994 Clay Smith, BOT 499  
1996 Steve Sayegh, BOT 499  
1999 Ynez Montoya (MARC Program)  
2002-3 Jenny Hollis, PLB 499  
2003-4 Linsey Revie, PLB 499  
2004-5 Chris Altamarano, PLB 499 (MARC Program)  
2004-5 Jonathan Noyes-Elfstrom, PLB 499  
2005-6 Yuliya Ivanitshaya, Independent research in my lab in collaboration with Dr. Tim Newman (Dept Physics ASU)

#### **COURSES TAUGHT: ARIZONA STATE UNIVERSITY**

BIO 512 Transmission Electron Microscopy: 1990 - 2000  
BIO 515 Scanning Electron Microscopy: 1991, 1992, 2005, 2007  
BIO/PLB/MCB 598 Current Techniques in Light and Electron Microscopy: 2001 -2005  
BOT 591 Protist Graduate Seminar; 1991, 1992  
BIO 598 Advanced Techniques in Electron Microscopy: 1993  
PLB 401 General Mycology: 1994, 1996, 1998, 2000, 2002, 2004, 2007  
BIO 181 Concepts of Biology (team taught): 1995, 1996  
BIO 550 Advanced Cell Biology (team taught): 1995 - 2007  
MCB 555 Molecular and Cell Biology (team taught): 1995; 2000-2006  
BOT 394 The Biology of the Algae and Fungi: 1997, 1998  
BIO 353 Cell Biology: 2000, 2004-2007

#### **PUBLICATIONS IN REFEREED JOURNALS**

Hohmann-Marriott, M.F., Uchida, M., van de Meene, A.M.L., Garret, M., Hjelm, B.E., Kokoori, S., **Roberson, R.W.** (2006) Electron tomography and its application to revealing fungal ultrastructure: *Tansley Review*. *New Phytologist*. 172:208-220.  
Mouriño-Pérez, R.R., **Roberson, R.W.**, Bartnicki-García, S. (2006) Microtubule dynamics and organization during hyphal branching in *Neurospora crassa*. *Fungal Genetics and Biology* 43(6):389-400

- van de Meen A., Hohmann-Marriott M.F., Vermaas W.F.J., **Roberson R.W.** 2006. The three-dimensional structure of the cyanobacterium *Synechocystis* sp. PCC 6803. *Archives of Microbiology* 184:259-270.
- Hohmann-Marriott, M.F., Sharp, W.P., Blankenship, R.E., **Roberson, R.W.** (2005) Digital position determination system for electron microscopy. *Microscopy Techniques and Methods*. 67:106-111.
- Mohamed, H.E., Van de Meene, A.M.L., **Roberson, R.W.**, Vermaas, W. 2005. Myxoxanthophyll is required for normal cell wall structure and thylakoid organization in the cyanobacterium *Synechocystis* sp. strain PCC 6803. *Journal of Bacteriology* 187:6883-6892.
- Hohmann-Marriott, M.F. Blankenship, R.E., **Roberson, R.W.** 2005. The ultrastructural of *Chlorobium tepitum* chlorosomes revealed by electron microscopy. *Photosynthesis Research* 86:145-154.
- Uchida, M., **Roberson, R.W.**, Chun, S., Kim, D. 2005. *In vivo* effects of the fungicide ethaboxam on microtubule integrity in *Phytophthora infestans*. *Pest Manag Sci.* 61:787-792
- Harris, S.D., Read, N.D., **Roberson, R.W.**, Shaw, B., Seiler, S., Plamann, M., Momany, M. 2004. Spitzenkörper meets polarisome: microscopy, genetics, and genomics converge. *Eukaryotic Cell* 4: 225-229.
- Lowry, D.L., Fisher, K.F., **Roberson, R.W.** 2004. Functional necessity of the cytoskeleton during cleavage membrane development and zoosporogenesis in *Allomyces macrogynus*. *Mycologia* 96, 211-218.
- Riquelme M., McDaniel, D.P., Bartnicki-García S., **Roberson R.W.** 2002. The effect of ropy-1 mutation on cytoplasmic organization in mature hyphae of *Neurospora crassa*. *Fungal Genetics and Biology* 37: 171-179
- Woyke T., Winkelmann G, **Roberson R.W.** Pettit, G.R., Pettit R.K. 2002. Three-dimensional visualization of microtubules during the *Cryptococcus neoformans* cell cycle and effects of auristatin PHE. *Antimicrobial Agents and Chemotherapy* 46: 3802-3808
- Pettit R.K., Hamel E., Verdier-Pinard P., **Roberson R.W.**, Hazen K.C., Pettit G.R., Crews L.C. 2002. Antifungal and cancer cell growth inhibitory activities of 1-(3',4',5'-trimethoxyphenyl)-2-nitroethylene. *Mycosis* 45:65-74
- McDaniel, D.P., **Roberson, R.W.** 2000. Intracellular motility and mechanisms of control during hyphal tip growth in *Allomyces*. *Fungal Genetics and Biology* 31:223-234
- Fisher, K.E., Lowry, D.S. **Roberson, R.W.** 2000. Cytoplasmic cleavage in zoosporangia of *Allomyces macrogynus*. *Journal of Microscopy* 198:260-270
- Gorur, R.S., **Roberson, R.W.**, Burnham, J., and Hill, R. 1999. Mold growth on nonceramic insulators and its impact on electrical performance. *IEEE Power Engineering Society* 23: 345-349
- Harding, M.W., Stutz, J.C., **Roberson, R.W.** 1999. Host-parasite relationships in bean cultivars of varying susceptibility to bean rust. *Canadian Journal of Botany* 77:1551-1559
- Park, Y., Eggink, L.L., **Roberson, R.W.**, Hooper, K. 1999. Transfer of proteins from the chloroplast to vacuoles in *Chlamydomonas reinhardtii*: a pathway for degradation. *Journal of Phycology*. 35:528-538
- Lowry, D.S., Fisher, K.E., **Roberson, R.W.** 1998. Establishment and maintenance of nuclear position during zoospore formation in *Allomyces macrogynus*: roles of the cytoskeleton. *Fungal Genetics and Biology* 24:34-44
- McDaniel D.P, **Roberson, R.W.** 1998.  $\gamma$ -Tubulin is a component of the Spitzenkörper and centrosomes in hyphal tip cells of *Allomyces macrogynus*. *Protoplasma* 203:118-123
- Roberson, R.W.**, Tucker, B., Pettit, G.R. 1998. Microtubule depolymerization in *Uromyces appendiculatus* by three new antineoplastic drugs: combretastatin A-4, dolastatin 10 and halichondrin B. *Mycological Research* 102:378-382
- McNally, H.A., Kozicki, M.N. **Roberson, R.W.**, Whidden, T.K. 1997. Electrical Characterization of *Uromyces* germ tubes grown on integrated circuit substrates. *Journal of Vacuum Science and Technology*. 15:779-783
- Lowry, D., **Roberson, R.W.** 1997. The microtubule cytoskeleton during zoospore formation in *Allomyces macrogynus*. *Protoplasma* 196:45-54
- Srijayanthi, S., Vargas, M., **Roberson, R.W.** 1996. Functional, organizational, and biochemical analysis of actin in the hyphal tip cells of *Allomyces macrogynus*. *Mycologia* 88:57-80

- Kozicki, M.N., **Roberson, R.W.**, Whidden, T.K. S.E. Kersey. 1995 Directed growth of *Uromyces* hyphae on integrated circuit substrates. *The Journal of Vacuum Science and Technology* 13: 1808-1813
- Roberson, R.W.**, Vargas. 1994. The tubulin cytoskeleton and its sights of nucleation in *Allomyces macrogynus*. *Protoplasma* 182:19-31
- Preisig, H.R., Anderson, O.R., Corliss, J.O., Moestrup, O., Powell, M.J., **Roberson R.W.**, Wetherbee, R. 1994. Terminology of protist cell surface structures. *Protoplasma* 181:1-28
- Vargas, M., Aronson, J.M., **Roberson R.W.** 1993. Cytological organization of hyphal tip cells of *Allomyces macrogynus*. *Protoplasma* 176:43-52
- Roberson, R.W.** 1993. Cryofixation and freeze substitution of teliospores of *Gymnosporangium clavipes*: an ultrastructural investigation. *Mycological Research* 97:195-204
- Martin, C.A., Ruter J.M., **Roberson R.W.**, Sharp W.P. 1993. Elemental absorption and hydration potential of polyacrylamide gels. *Commun. Soil Sci. Plant Anal.* 24:539-548
- Roberson, R.W.** 1992. The actin cytoskeleton in hyphal cells of *Sclerotium rolfsii*. *Mycologia* 84 41-51
- Roberson, R.W.**, Luttrell E.S., Fuller M.S. 1990. Mycoparasitism of teliospores of the smut fungus *Ustilago bullata* by an oomycete. *Canadian Journal of Botany.* 68:2415-2421
- Fuller, M.S., **Roberson R.W.**, Gisi U. 1990. Effects of the sterol biosynthesis inhibitor cyproconazole on hyphal tip cells of *Sclerotium rolfsii*. III A cytochemical study. *Pesticide Biochemistry and Physiology* 36:115-126
- Roberson, R.W.**, Fuller, M.S. 1990. Effects of the sterol biosynthesis inhibitor cyproconazole on hyphal tip cells of *Sclerotium rolfsii*. II An electron microscopic study. *Experimental Mycology* 14:124-135
- Roberson, R.W.**, M.S. Fuller, C. Grebski. 1989. Effects of the sterol biosynthesis inhibitor cyproconazole on hyphal tip cells of *Sclerotium rolfsii*. I A light microscopic study. *Pesticide Biochemistry and Physiology* 34: 130-142
- Roberson, R.W.**, E.S. Luttrell. 1989. Dolipore septa in *Tilletia*. *Mycologia* 81 650-652
- Sewall, T.C., **Roberson, R.W.**, Pommerville, J.C. 1989. Identification and characterization of Golgi equivalents from *Allomyces macrogynus*. *Experimental Mycology* 13: 239-252
- Roberson, R.W.**, Fuller, M.S. 1988. Ultrastructural aspects of the hyphal tip of *Sclerotium rolfsii* preserved by freeze substitution. *Protoplasma* 146:143-149
- Fuller, M.S., **Roberson, R.W.** 1988. The effects of sterol biosynthesis inhibitors on cleavage in *Allomyces macrogynus*. *Mycologia* 80:716-724
- Mims, C.W., **Roberson, R.W.**, Richardson, E.A.. 1988. Ultrastructure of freeze-substituted and chemically fixed basidiospores of *Gymnosporangium juniperi-virginianae*. *Mycologia* 80:356-364
- Mims, C.W., Richardson, E.A., **Roberson. R.W.** 1987. Ultrastructure of basidium and basidiospore development in three species of the fungus *Exobasidium*. *Canadian Journal of Botany* 65:1236-1244
- Roberson, R.W.**, Luttrell, E.S. 1987. Ultrastructure of teliospore ontogeny in *Tilletia indica*. *Mycologia* 79: 753-763
- Elijah, R.D., Cheeks, K., Bohn, G., **Roberson, R.W.**, Green, K. 1985. Pharmacological modification of corneal endothelia intracellular Ph, intracellular potential, and corneal thickness. *Current Eye Research* 1: 343-352
- Mims, C.W., **Roberson, R.W.** 1983. Ultrastructure of ornamentation development on aeciospores of *Cronartium quercuum* forma specialis *fusiforme*. *Mycologia* 7:400-411
- Mims, C.W., **Roberson, R.W.** 1981. TEM and SEM of teliospore germination and basidiospore formation in two species of the rust fungus *Gymnosporangium*: an overview. *Texas Society for Electron Microscopy Journal* 7: 7-15

#### **PUBLICATIONS IN EDITED BOOKS**

- Martin Hohmann-Marriott, Allison van de Meene and **Roberson, R.W.** 2006. Electron tomography: Advances in Photosynthesis. *Biophysical techniques in photosynthesis* (Volume II), Series Editor Govindjee, J. Matysik and T. J. Aartsma (in press), Kluwer Academic Publishers.
- Roberson, R.W.**, Chandler, D.E. 1998. Rapid freezing and deep etching of cells and molecules. *In: Cell Biology: A Laboratory Handbook.* Eds. D. Spector, R. Goldman, and L. Leinwand. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York. (pp.129.1-129.23).
- Roberson, R.W.** 1991. The hyphal tip cell of *Sclerotium rolfsii*: cytological observations. *In: Fungal Cell Wall and Immune Response.* Pp. 27-37. Eds. J.P. Latge and D. Boucias. NATO Scientific Series, Springer-Verlag, Berlin, Heidelberg.

- Howard, W., **Roberson, R.W.** 1987. *Pythium*: sexual reproduction. Pp 92-93. *In*: Zoosporic Fungi in Teaching and Research. Eds. M.S. Fuller and A. Jaworski. Southeastern Publishing Corp.
- Roberson, R.W.**, Howard, W. 1987. *Pythium*: asexual reproduction. Pp 90-91. *In*: Zoosporic Fungi in Teaching and Research. Eds. M.S. Fuller and A. Jaworski. Southeastern Publishing Corp.

#### BOOKS PUBLISHED

- Roberson R.W. and D.E. Chandler. 2007. Methods in Biolmaging. Jones and Bartlett, Boston, MA. (in press)

#### PUBLISHED ABSTRACTS AND SCIENTIFIC PRESENTATIONS

- Uchida, M., R.R. Mouriño-Pérez, M. Freitag, **R.W. Roberson**. 2007. Live cell imaging of microtubule dynamics in *Neurospora crassa* using total internal reflection fluorescence microscopy, Fungal Genetics Conference, Asilomar, Pacific Grove, CA.
- Mourino-Perez, R. R., I. J. Galvan-Mendoza, M. Riquelme, M. Freitag, **R.W. Roberson**, M. Uchida, S. Bartnicki-Garcia. 2006. Comparative dynamics of the microtubular cytoskeleton in living hyphae of *Neurospora crassa* wild type, *ropy-1* and *ropy-3*. 8<sup>th</sup> European Conference of Fungal Genetics. Supplement p. 100. (poster paper)
- Mourino-Perez, R. R., **R.W. Roberson**, M. Uchida, S. Bartnicki-Garcia. 2006. Microtubule dynamics in *Neurospora*. Xth Mycological Congress. Australia, invited.
- Uchida, M., R. R. Mournino-Perez, **R.W. Roberson**. 2006. Apical microtubule dynamic instability in *Neurospora crassa* hyphae. *Neurospora* Supplement p. 24, Abstract 13. (poster paper)
- Uchida, M., R. R. Mournino-Perez, **R.W. Roberson**. 2006. Apical microtubule dynamics in a fast growing fungus, *Neurospora crassa*. Arizona Imaging and Microanalysis Society, Tucson, Az. (poster paper)
- Altamirano, C., **R.W. Roberson**. 2006. Characterization of polarized growth in the fungus *Rhizopus*. MARC Student Presentations. ASU. (poster paper)
- Altamirano, C., **R.W. Roberson** 2006. Organization and dynamics of microtubules during hyphal growth in *Rhizopus*. Arizona Imaging and Microanalysis Society, Tucson, Az. (poster paper)
- Mouriño-Pérez, Rosa R., Iván J. Galván-Mendoza, M. Riquelme, M. Freitag, **R.W. Roberson**, M. Uchida, S. Bartnicki-García. 2006. Comparative dynamics of the microtubular cytoskeleton in living hyphae of *Neurospora crassa* wild type, *ropy-1* and *ropy-3*. XXIV Fungal Genetics Conference, Asilomar, Pacific Grove, CA. March 15-19.
- Vermaas, W, **R.W. Roberson**, S. Hamad, B. Wang, Z. Cai. A. van de Meene. 2006. The Cyanobacterium *Synechocystis* sp. PCC 6803: Membrane Biogenesis, Structure and Function. Microbial Cell Project, Washington, DC. (poster paper)
- Mouriño-Pérez, R.R. and **R.W. Roberson**. 2006. In vivo imaging of the dynamics of the microtubular cytoskeleton of *Neurospora crassa* wild type, *ropy-1*, *ropy-3* and *nkin*. International Mycological Congress, Australia, August 19-25<sup>th</sup>. (poster paper)
- Roberson, R.W.** 2005. The roles of microtubules in polarized fungal hyphal tip growth. IUMS (American Society of Microbiology). Invited Speaker at the "Growth" symposium, San Francisco, CA, San Francisco, CA, July 28, 2005.
- Mohamed, HE, Van de Meene, AML, **Roberson, R.W.**, and Vermaas, W. 2005. Functional analysis of Slr1125, a putative glycosyl transferase involved with the synthesis of the myxoxanthophyll and the cell wall of *Synechocystis* sp. PCC 6803. IUMS meeting, San Francisco. (poster paper)
- Hohmann-Marriott, Martin F, **R.W. Roberson**, Robert E. Blankenship. 2005. Electron tomographic study of the green sulfur bacterium *Chlorobium tepidum* Gordon Conference on Photosynthesis, Smithfield, RI, July 2005. (poster paper)
- Hohmann-Marriott, Martin F, Robert E. Blankenship, **R.W. Roberson**. 2005. Electron tomographic determination of chlorosome distribution in *Chlorobium tepidum*. Meeting of the Arizona Imaging Society, March 24, Arizona State University, Tempe, AZ, USA. (poster paper)
- Kalkman E.R., **R.W. Roberson**, and N.D. Read. 2005. Endocytosis: A Filamentous Fungal Perspective. XXIII Fungal Genetics Conference, Asilomar, Pacific Grove, CA. March 15-19.
- Michael Köhli, Philipp Knechtle, Kamila Boudier, **R.W. Roberson**, and Peter Philippsen. 2005. Spitzenkörper and Polarisome of *Ashbya gossypii*. XXIII Fungal Genetics Conference, Asilomar, Pacific Grove, CA. March 15-19.

- Rosa R. Mouriño-Pérez, **R.W. Roberson** and Salomon Bartnicki-García. 2005. Microtubule dynamics during hyphal growth and branching in *Neurospora crassa*. XXIII Fungal Genetics Conference, Asilomar, Pacific Grove, CA. March 15-19.
- Martin F. Hohmann-Marriott, Robert W. Roberson, Robert E. Blankenship [Poster] 2005. Electron tomographic study of the photosynthetic apparatus of the green sulfur bacterium *Chlorobium tepidum*. 13th International Congress on Photosynthesis, Satellite Workshop on Photosynthetic Light-Harvesting Systems, August 26-29, Sainte-Adèle, Quebec, Canada
- Cordery, C.K., Livo, L.J., Carey, C., Davidson, E.W., **Roberson, R.W.** and Chandler, D.E. 2005. Maturation of *Batrachochytrium dendrobatidis*. (Poster) Arizona Imaging and Microanalysis Society, Tempe, March 24, 2005.
- Cordery, C.K., Livo, L.J., Carey, C., Davidson, E.W., **Roberson, R.W.** and Chandler, D.E. 2005. Growth and differentiation of *B. dendrobatidis*. (Oral Presentation) Rocky Mtn Conference of Parasitologists, Apr 28-30, 2005, Casper WY
- Cordery, C.K., Livo, L.J., Carey, C., Davidson, E.W., **Roberson, R.W.** and Chandler, D.E. 2005. Growth and differentiation of *B. dendrobatidis*. (Oral Presentation) American Society of Parasitologists, July 6-13, 2005, Mobile, AL.
- Cordery, C.K., Livo, L.J., Davidson, E.W., **Roberson, R.W.** and Chandler, D.E. 2005. In Vitro growth patterns of *B. dendrobatidis*. (Poster) Rocky Mtn Conference of Parasitologists, Apr 28-30, 2005, Casper WY
- Cordery, C.K., Livo, L.J., Davidson, E.W., **Roberson, R.W.** and Chandler, D.E. 2005. In Vitro growth patterns of *B. dendrobatidis*. (Poster) American Society of Parasitologists, July 6-13, 2005, Mobile, AL.
- Uchida, M., Bartnicki-García, S., **Roberson, R.W.** 2004. Mechanisms of Hyphal Tip Growth and Morphogenesis in the Filamentous Fungus *Neurospora crassa*. Microscopy and Microanalysis, vol 10; pg 1554-1555 cd. 2004, Savannah, Georgia, USA. Contributed paper August 2004.
- Uchida, M., **Roberson, R.W.** 2004. Towards predicting cytoplasmic function from order and dynamics: 4-D cytoplasmic analysis of polarized hyphal tip growth. Mycological Society of America 2004 Supplement p. 98, Poster 108
- Uchida, M., Perry, E., **Roberson, R.W.** 2004. Mechanism of polarized growth and hyphal morphogenesis in *Neurospora crassa*. Neurospora 2004 Supplement p. 24, Abstract 27. (poster paper)
- Uchida, M., **Roberson, R.W.** 2004. Polarized Growth and Hyphal Morphogenesis in Filamentous Fungi. Arizona Imaging and Microanalysis Society. (poster paper)
- Hohmann-Marriott, M.F. Blankenship, R.E., **Roberson, R.W.** 2004. The Ultrastructure of the Photosynthetic Machinery of the Green Sulfur Bacterium *Chlorobium tepidum*. International Workshop on Structural Analysis of Supramolecular Assemblies by Hybrid Methods, March 17th to 20th, 2004, Granlibakken Conference Center, Lake Tahoe, California
- Hohmann-Marriott, M.F., Van de Meene, A.M.L., **Roberson, R.W.** Blankenship, R.E. 2004. Ultrastructure of the Photosynthetic Machinery of *Chlorobium tepidum*. 13th Western Photosynthesis Conference, January 8-11, Asilomar Conference Grounds, Pacific Grove, CA
- van de Meene, A.M.L., Reavie, L.B., Vermaas, W.F.J., **Roberson, R.W.** 2004. A reticulate network of filaments in the photosynthetic prokaryote *Synechocystis* sp. PCC 6803 identified by electron tomography. Microscopy and Microanalysis 2004, Savannah, Georgia, USA. Contributed paper August 2004.
- van de Meene, A.M.L., McDaniel, J.H., Vermaas W.F.J., **Roberson, R.W.** 2004. Mechanisms of thylakoid biogenesis in *Synechocystis* sp. PCC 6803 suggested by electron tomography. International workshop on Structural analysis of supramolecular assemblies by hybrid methods. Lake Tahoe, California, USA. March 2004
- van de Meene, A.M.L., Reavie, L.B., Hohmann-Marriott, M.F.J., Vermaas, W.F.J., **Roberson, R.W.** Organization of thylakoid membranes in the cyanobacterium *Synechocystis* sp. PCC 6803. American Society of Cell Biology 2003, San Francisco, CA USA. December 2003.
- van de Meene, A.M.L., Reavie, L.B., Hohmann-Marriott, M.F.J., Vermaas, W.F.J., **Roberson, R.W.** Organization of thylakoid membranes in the cyanobacterium *Synechocystis* sp. PCC 6803. QB3 Imaging Symposium, UC Berkeley, San Francisco, CA USA. December 2003
- van de Meene, A.M.L., Reavie, L.B., Vermaas, W.F.J., **Roberson, R.W.** Three-dimensional ultrastructure of the cyanobacterium *Synechocystis* sp. PCC 6803 using electron tomography. American Society for Plant Biology 2003, Honolulu, HI USA. July 2003.

- van de Meene, A.M.L., Mohamed, H.E., **Roberson, R.W.** and Vermaas, W.F.J. Thylakoid membrane organization in mutants of the cyanobacterium *Synechocystis* sp. PCC 6803 lacking genes involved in carotenoid biosynthesis. 103rd General Meeting of the American Society for Microbiology, Washington D.C., USA. May 2003.
- van de Meene, A.M.L., Reave, L., Hohmann-Marriott, M.F., Vermaas, W.F.J., **Roberson, R.W.** Using light and electron microscopy to investigate gene deletion mutants of *Synechocystis* sp. PCC 6803. Arizona Imaging and Microanalysis Society Conference 2003, Tuscon, AZ, USA. February 2003.
- van de Meene, A.M.L., **Roberson, R.W.**, Hohmann-Marriott, M.F., Vermaas, W.F.J. Thylakoid membrane organization in the cyanobacterium *Synechocystis* sp. PCC 6803. 12th Western Photosynthesis Conference, Monterey Bay, CA, USA. January 2003.
- Lowry, DS, Fisher, KE and **R.W. Roberson**. 2003. Functional Necessity of the Cytoskeleton During Cleavage Membrane Development and Zoosporegenesis in *Allomyces macrogynus*. *Inoculum* 54(3):33-34
- Roberson, R.W.** 2003. Microtubule organization in *Neurospora crassa*. XXII Fungal Genetics Conference, Asilomar, Pacific Grove, CA.
- Van de Meen, A., Mohamed H.E., **Roberson, R.W.**, Vermaas, W. 2003. Thylakoid membrane organization in mutants of the cyanobacterium *Synechocystis* sp. PCC 6803 lacking genes involved in carotenoid biosynthesis. American Society of Microbiology 103rd General Meeting, May 18-22, Washington D.C.
- Roberson, R.W.** 2002. The cytoskeletal network and hyphal growth: a light and electron microscope study of cytoplasmic organization and dynamics. VIII Fungal Biology Conference; December 2-6, Guanajuato, Mexico
- Roberson, R.W.**, Bartnicki-García, S. 2002. Using light and electron microscopy to explore cytoplasmic order, behavior, and mutation mode of action. VII International Mycological Congress, Oslo, Norway (Invited Symposium Speaker).
- Roberson, R.W.** 2002. The study of fungal cell growth and morphogenesis through a microscopist's eyes. Department of Plant Biology, ASU, Tempe, AZ.
- Vermaas W., **Roberson R.W.**, Meene A, F. Xiong, Hohmann-Marriott M., Faull K., Whitelegge J. 2002. Toward an integrative functional and structural understanding of photosynthesis and respiration in a cyanobacterium
- Hohmann-Marriott, M, **Roberson, R.W.**, Vermaas, W.. 2002. Ultrastructural characterization of *Synechocystis* sp. PCC 6803 wildtype and mutants deficient in respiration
- Vermaas W., **Roberson R.W.**, Hohmann-Marriott M., Jenk D., Cai Z., Faull K., Whitelegge J. 2002. Genome sequence-based functional and structural analysis of a transformable cyanobacterium: the *Synechocystis* sp. PCC 6803. Microbial Cell Project; Washington, DC.
- Roberson, R.W.** 2002. An examination of the cytoplasmic phenotypes in dynein deficient hyphae. Mycological Society of America. Oregon State University, Corvallis, OR. June 24-26. (Invited Symposium Speaker).
- Roberson, R.W.** 2002. Roles of the microtubule cytoskeleton in fungal morphogenesis. Texas Society for Microscopy. Fort Worth, Texas. April 18-20, (Keynote Speaker).
- Wim Vermaas, **Robert Roberson**, Martin Hohmann-Marriott, Daniel Jenk, Zhi Cai, Kym Faull, and Julian Whitelegge [Poster] 2002. Genome sequence-based functional and structural analysis of a transformable cyanobacterium: the *Synechocystis* sp. PCC 6803 microbial cell project DOE Genome Contractor-Grantee Workshop IX, January 27-31, Oakland, CA, USA
- Martin Hohmann-Marriott, **Robert Roberson** and Wim Vermaas [Poster] 2002. Ultrastructural comparison of *Synechocystis* sp. PCC 6803 wildtype and mutants deficient in respiration and photosynthesis 11th Western Photosynthesis Conference, January 3-6, Asilomar Conference Grounds, Pacific Grove, CA, USA
- Woyke. T., **Roberson, R.W.**, Pettie, R.K. 2001. In vitro preclinical evaluation of auristatin PHE and effects on microtubule integrity and nuclear location in *C. Neoformans*. The Bridging Disciplines Symposium. The Colleg of Medicine, University of Arizona, Tucson. October 17-18, 2001.
- Woyke. T., **Roberson, R.W.**, Pettie, R.K.. 2001. Pharmacodynamics of a potent dolastatin 10 derivative and effects on cryptococcal cell division. 101st American Society for Microbiology General Meeting, Orlando, FLA.
- Crews, L.C., Pettit, R.K., **Roberson, R.W.** 2001. Effects of 1-(3',4',5'-trimethoxyphenyl)-2-nitroethylene on the microtubule cytoskeleton and nuclear positioning of *Aspergillus nidulans* germlings and

- mature hyphae. 101st American Society for Microbiology General Meeting, Orlando, FLA.
- Roberson, R.W.**, M. Riquelme, M., McDaniel, D.P., Bartnicki-García, S. 2001. The *ropy-1* mutation disrupts cytoplasmic organization and intracellular motility in mature hyphae of *Neurospora crassa*. Mycological Society of America and American Phytopathology Society. Salt Lake City, Utah. August 5-9, 2001.
- Roberson, R.W.** 2002. An examination of the cytoplasmic phenotypes in dynein deficient hyphae. Mycological Society of America. Oregon State University, Corvallis, OR. June 24-26.
- Roberson, R.W.** 2002 Light and electron microscopy as tools for studying cell growth and morphogenesis in fungi. SouthEastern Microscopy Society. University of Georgia, Athens, GA. May 15-17. (Invited Symposium Speaker).
- Roberson, R.W.**, Riquelme, M., McDaniel, D.P., Bartnicki-García, S. 2001. The effects of *ropy-1* mutation on cytoplasmic organization and intracellular motility in mature hyphae of *Neurospora crassa*. XXI Fungal Genetics Conference, Asilomar, Pacific Grove, CA.
- Roberson, R.W.** 2000. Visualization and analysis of membrane development during fungal cell differentiation Microscopy Society of America, Philadelphia, PA.
- Sharp, W.P, Coufalova, E., Delong, A., Kolarik, V., **Roberson, R.W.**, Tsong, I.S.T. 2000. Use of the low voltage transmission electron microscope with biological specimens: a feasibility study. Microscopy Society of America, Philadelphia, PA.
- Roberson, R.W.**, McDaniels, D.P. 1999. The Spitzenkörper functions as a microtubule organizing center in hyphae of *Allomyces*. International Botanical Congress, St. Louis, Ill.
- Roberson, R.W.**, McDaniel, D.P. 1999.  $\gamma$ -Tubulin is associated with the Spitzenkörper and centrioles in hyphae of *Allomyces macrogynus*. 12th Fungal Genetics Conference, Asilomar. 46:65.
- Roberson, R.W.** 1999. The organization and dynamics of the fungal cytoskeleton during cell growth and development. 6th International Botanical Microscopy Meeting, Royal Microscopy Society, St Andrews, Scotland.
- Gorur, R.S., **Roberson, R.W.**, Burnham, J., Hill, R. 1999. Mold growth on nonceramic insulators and its impact on electrical performance. IEEE Power Engineering Society.
- Fisher, K.E., **Roberson, R.W.** 1999. Cleavage membrane development in *Allomyces macrogynus*. 12th Fungal Genetics Conference, Asilomar. 46:127.
- McDaniel, D.P, **Roberson, R.W.** 1998. Localization of  $\gamma$ -tubulin to the Spitzenkörper of *Allomyces macrogynus*. Inoculum 49:35.
- Fisher, K.E., **Roberson, R.W.** 1998. The development of cleavage membranes during zoospore formation in *Allomyces macrogynus* 49:19.
- McDaniel, D.P., **Roberson, R.W.** 1997. Isolation and characterization of microtubule-associated proteins from hyphal tip cells of *Allomyces macrogynus*. Inoculum 48:24 .
- Roberson, R.W.**, McDaniel, D.P. 1997. The ultrastructure of hyphal tip cells of *Botrytis cinerea*. Inoculum 48:33.
- Hintze, K., Sommerfeld, M.R., Stutz, J.C., **Roberson, R.W.** 1997. Development of a multimedia tutorial to teach phycology. Arizona-Nevada Academy of Science, Las Vegas, April 19.
- Hintze, K., Stutz, J.C., **Roberson, R.W.**, Sommerfeld, M.R. 1997. Multimedia mycology. Inoculum 48:12
- McDaniel, D.P., **Roberson, R.W.** 1997. Isolation and characterization of microtubule-associated proteins from hyphal tip cells of *Allomyces macrogynus*. Inoculum 48:15.
- Aldrich, H.C., Williams, D.S., **Roberson, R.W.**, Harding, M.W. 1996. Improved preservation of fungi and slime molds with microwave assisted fixation. Annual Meeting of the Histochemical Society.
- Harding, M.W., Stutz, J.C., **Roberson, R.W.** 1996. Uredinia development and host-parasite relationships in slow-rusting of bean. Inoculum 47:10.
- Lowry, D., **Roberson, R.W.** 1996. Cytoskeleton involvement in the establishment and maintenance of nuclear positions in zoosporangia of *Allomyces macrogynus*. Inoculum 47:20.
- Lowry, D., **Roberson, R.W.** 1995. The effects of nocodazole and cytochalasin D on cytoplasmic cleavage in zoosporangia of *Allomyces macrogynus*: an ultrastructural study. Inoculum 46: 27.
- Lowry, D., **Roberson, R.W.** 1994. The microtubule cytoskeleton during zoospore formation in *Allomyces macrogynus*. Fifth International Mycological Congress: VanCouver, B.C., Canada.
- Roberson, R.W.** 1994. Organization of the actin cytoskeleton in nuclear distribution mutants (*nud*) of *Aspergillus nidulans*. Arizona Society for Electron Microscopy and Microbeam Analysis, Tucson, AZ, March 10-11.
- Roberson, R.W.**, Pittman, H. 1993. Actin in hyphal germlings of *Aspergillus nidulans*. Inoculum 44:55.

- Roberson, R.W.**, Vargas, M. 1993. Evidence of a microtubule organizing center in the tips of fungal hyphae. Arizona Society for Electron Microscopy and Microbeam Analysis, Tempe, AZ, March 11-12.
- Roberson R.W.** 1992. Cryofixation and Preparation Methods. *Inoculum* 43:53.
- Sharp, W.P., **Roberson, R.W.** 1992. High-pressure freezing and freeze substitution of plant tissue. *In: Proceedings of the 50th Annual Meeting of the Electron Microscopy Society of America.* pp 748-749. San Francisco Press Inc., San Francisco, CA.
- Garrett, M., **Roberson, R.W.** 1992. The effects of pisatin on the ultrastructure of *Nectria haematococca*. *Inoculum* 43:52.
- Garrett, M., **Roberson, R.W.** 1992. The hyphal tip of *Nectria haematococca*: effects of a phytoalexin. Arizona Society for Electron Microscopy and Microbeam Analysis, Tucson, AZ, March 22-23.
- Vargas, M., **Roberson, R.W.** 1992. The apical body in hyphal tips of *Allomyces macrogynus*. *Inoculum* 43:53.
- Martin C.A., Stutz, J.C., **Roberson, R.W.** 1992. Vesicular-arbuscular mycorrhizal fungi alter root growth of chilean mesquite in containers. *Hortscience* 27: 200.
- Roberson, R.W.** 1991. Three-Dimensional Analysis of Hyphal Tip Cells of *Sclerotium rolfsii*. *Inoculum* 42: 31.
- Roberson, R.W.** 1991. Actin distribution in fungal hyphae. *Journal of Electron Microscopic Techniques.* 18: 18.
- Roberson, R.W.** 1991. Ultrastructural analysis of rust teliospores quick frozen under high pressure and freeze substituted. *Journal of the Arizona and Nevada National Academe of Sciences.* 26: 24.
- Garrett, M., **Roberson, R.W.** 1991. Ultrastructure of the Host-Parasite Interface and Teliospore Formation in a Smut Fungus. *Journal of Electron Microscopic Techniques.* 18: 331.
- Vargas, M., **Roberson, R.W.**, Aronson, J. 1991. Microscopic observations of hyphal tip cells and zoosporangia in *Allomyces macrogynus*. *Journal of Electron Microscopic Techniques.* 18: 331.
- Vargas, M., **Roberson, R.W.**, Aronson, J. 1991. A Correlative light and Electron Microscope Investigation of Hyphal Tip Cells of *Allomyces macrogynus*. *Inoculum* 42:37.
- Martin C.A., Stutz, J.C., **Roberson, R.W.** 1991. Mycorrhizae and transplant establishment of trees in dry urban landscapes. *Proc. Intl Conf. of Southwestern Center for Environmental Research and Policy.* 1: 100-103.
- Vargas, M., **Roberson, R.W.**, Aronson, J. 1991. Preliminary study of hyphal tip and sporangia development in *Allomyces macrogynus*: a microscopic study. *Journal of the Arizona and Nevada National Academe of Sciences.* 26: 25.
- Roberson, R.W.** 1990. High pressure freezing and freeze substitution of teliospores of the rust fungus *Gymnosporangium clavipes*. pp. 692-693. *In: Proceedings of the Twelfth International Congress for Electron Microscopy.* San Francisco Press Inc., San Francisco, CA.
- Roberson, R.W.** 1990. Microscopic observations of teliospore germination of *Gymnosporangium clavipes*. *Mycological Society of America Newsletter.* 41: 35.
- Roberson, R.W.** 1990. Light and electron microscope observations of teliospore germination in a rust fungus *Journal of the Arizona and Nevada National Academe of Sciences.* 25: 7.
- Roberson, R.W.** 1990. Arizona Society for Electron Microscopy and Microbeam Analysis. Tucson, Arizona. "The microtubule and actin cytoskeletons in hyphal tip cells of ***Sclerotium rolfsii***".
- Roberson, R.W.**, Fuller, M.S. 1989. The effects of the sterol biosynthesis inhibiting fungicide, cyproconazole, on the microtubule and actin cytoskeletons in hyphal tip cells of *Sclerotium rolfsii*. *Mycological Society of America Newsletter.* 40: 24.
- Roberson, R.W.**, Fuller, M.S. 1988. Ultrastructural examination of hyphal tip cells of *Sclerotium rolfsii* fixed by freeze substitution. *Mycological Society of America Newsletter.* 39: 45.
- Fuller, M.S., **Roberson, R.W.** 1988. The effects of the sterol biosynthesis inhibitor, cyproconazole, on hyphal tip cells of *Sclerotium rolfsii*. *Mycological Society of America Annual Newsletter.* 39: 29.
- Roberson, R.W.**, Fuller, M.S. 1988. Southeastern Electron Microscopy Society. Athens, Georgia. "The cytoskeletal organization in hyphal tip cells of the fungal plant pathogen *Sclerotium rolfsii*."
- Roberson, R.W.** 1987. Southeastern Electron Microscopy Society. Savannah, Georgia. "Ultrastructure of mitotic events in budding sporidia of *Ustilago bullata* preserved by freeze substitution."
- Roberson, R.W.**, Fuller, M.S. 1987. Effects of a sterol biosynthesis inhibitor on hyphal tip cells of three basidiomycetous fungi. *Phytopathology* 77: 1702.
- Fuller, M.S., **Roberson, R.W.** 1987. The effect of sterol biosynthesis inhibitors on cleavage in zoosporic

- fungi. Mycological Society of America Annual Newsletter. 38: 25.
- Cason, K.M.T., **Roberson, R.W.**, Luttrell, E.S. 1987. Development of the mulberry popcorn disease caused by *Ciboria carunculoides*. Mycological Society of America Newsletter 38: 19.
- Roberson, R.W.**, Luttrell, E.S., Fuller, M.S. 1986. An oomycete fungus parasitic on teliospores of the smut fungus *Ustilago bullata*. Mycological Society of America Newsletter. 37: 41.
- Roberson, R.W.**, Luttrell, E.S. 1985. Southeastern Electron Microscopy Society. Augusta, Georgia. "Ultrastructure of teliospore formation in the karnal bunt fungus."
- Roberson, R.W.**, Luttrell, E.S. 1985. Formation of exogenous terminal teliospores in *Neovossia indica*. Mycological Society of America Newsletter. 34: 37.
- Roberson, R.W.**, Mims, C.W. 1982. Texas Society for Electron Microscopy. Galveston, Texas. "The ultrastructure of basidium and basidiospore formation in *Exobasidium*."
- Roberson, R.W.**, Mims, C.W. 1982. Texas Society for Electron Microscopy. Denton, Texas, "Ultrastructure of aeciospore ornamentation in the rust fungus *Cronartium quercuum*."
- Roberson, R.W.**, Culhavy, C.D. 1982. Texas Society for Electron Microscopy. Denton, Texas. "Ultrastructure of the wounded tree beetle *Nosodendron californicum*."

#### INVITED SYMPOSIUM/LECTURE PARTICIPATION

- 2007 XXV Fungal Genetics Conference, Asilomar, Pacific Grove, CA. 'Live cell imaging of microtubule dynamics in *Neurospora crassa* using total internal reflection fluorescence microscopy, Presented by Maho Uchida.
- 2006 Xth Mycological Congress, Australia. 'Microtubule dynamics in *Neurospora*' Presented by Dr. Rosa Mourino-Perez.
- 2006 Department of Biophysics Departmental Seminar. "Fungi and the Cytoskeleton". (Feb 2006)
- 2006 IXth International Fungal Biology Conference & 16th New Phytologist Symposium, Nancy, France. 18-20 September. Presentation Title: "Advances in Microscopic Analysis in the Studies of Fungal Cell Biology".
- 2006 Canadian Federation of Biological Societies Northern Lights Conference, University of Saskatchewan, Saskatoon, Saskatchewan, Canada. Symposium Title: "Modern Analyses Using Electron Microscopy". Presentation Title: "Three-dimensional light and electron microscopy examination of fungal cytoplasm during cell growth and differentiation". (13-17 June 2006)
- 2005 Molecular and Cellular Biology Colloquium, Arizona State University, "Cell growth and morphogenesis in fungi", December.
- 2005 Dipartimento di Biologia Vegetale dell' Università, Istituto per la Protezione delle Piante – CNR, Sezione di Torino, Viale Mattioli 25 - 10125 Torino; Departmental Seminar: "Fungal cell growth and morphogenesis: roles of the cytoskeleton".
- 2005 Gordon Research Conference in Three-dimensional electron microscopy (van de Meene, A.M.L., Auer, M., Vermaas, W.F.J., and **Roberson, R.W.**). "Macromolecules in resin embedded tomograms of *Synechocystis* sp. PCC 6803." 12-17 June 2005. Chair: Ken Downing.
- 2005 The roles of microtubules in polarized fungal hyphal tip growth. IUMS (American Society of Microbiology). Invited Speaker at the "Growth" symposium, San Francisco, CA, San Francisco, CA, July 28, 2005
- 2004 BASF AG, Rehhütte, Schwalbenzimmer, "Workshop on Tubulin Structure and Function in Fungi", October
- 2004 Microscopy Society of America, Savannah, GA. "Polarized Growth in Fungal Hyphae: role of the Microtubule Cytoskeleton", August.
- 2004 Microscopy and Microanalysis, Savannah, GA. (van de Meene, A.M.L., Reavie, L.B., Vermaas, W.F.J., **Roberson, R.W.**) "A reticulate network of filaments in the photosynthetic prokaryote *Synechocystis* sp. PCC 6803 identified by electron tomography". Symposium Presentation by A.M.L. van de Meene.
- 2004 Mycological Society of America, Ashville NC, "The Roles of Microtubules in Fungal Morphogenesis", July.
- 2004 *Neurospora* Annual Meeting (M. Uchida, E. Perry, R.W. Roberson). 'Mechanism of polarized growth and hyphal morphogenesis in *Neurospora crassa*'. Asilomar, Pacific Grove, CA. Symposium Presentation by M. Uchida.
- 2003 Department of Integrative Biology, Harvard, Cambridge MS. "Visualization of Fungal Morphogenesis", November.

2003. Department of Biology, Rhoads College, Memphis TN. "Fungal Morphogenesis and the Roles of the Cytoskeleton". October
- 2003 Arizona Imaging and Microanalysis Society, University of Arizona, Tucson, AZ. "Visualization of Cytoplasmic Order and Dynamics During Cellular Growth and Morphogenesis in Fungi", March
- 2002 Department of Plant Biology, Arizona State University, Tempe, AZ. "Cytoplasmic organization, dynamics and cell growth in fungi and plants", September
- 2002 International Mycological Congress, Oslo, Norway. "Cell growth and differentiation: use of advanced light and electron microscopy methods", August
- 2002 Mycological Society of America, Oregon State University, Corvallis, OR. "Electron microscope analysis of growth mutations in fungi", June
- 2002 Southeastern Microscopy Society, Athens, GA. "Elucidation of the mechanisms of fungal cell growth using light and electron microscopy", May.
- 2002 Texas Society of Microscopy, El Paso, TX. "Investigations of fungal cytoskeletal organization and function using light and electron microscopy", April. (Keynote Address).
- 2001 Kraft Foods, Inc. Glenview, IL. "Light and Electron Microscopy of fungi: applications to food science", February
- 2000 Department of Biology, University of Texas at El Paso, El Paso, TX. "The roles of tubulins in morphogenesis of *Allomyces*", December
- 2000 Mycological Society of America, University of Vermont, ○The dynamics of microtubules during zoospore formation in *Allomyces*○, July
- 2000 Microscopy Society of America, Philadelphia, PA. ○Visualization and analysis of membrane development during fungal cell differentiation○, August
- 1999 International Botanical Congress, St. Louis Ill. ○The Spitzenkörper functions as a microtubule organizing center in hyphae of *Allomyces*○, July
- 1999 Royal Microscopical Society, 6th International Botanical Microscopy Meeting: Plant Cell Biology, University of St. Andrews, Scotland. "The fungal cytoskeleton during cell growth". March
- 1999 12th Fungal Genetics Conference, Pacific Grove, Ca. "Gamma-tubulin in hyphal cells of *Allomyces*○, March
- 1998 Department of Botany, University of Washington, Seattle, WA. "Cell growth and morphogenesis in the fungus *Allomyces*. November
- 1997 First Annual Biotechnology Symposium. Arizona State University. "The Fungal Cytoplasm and Biotechnology" September
- 1997 The Second NSF-Funded Women's Images of Science and Engineering (WISE) Workshop at Arizona State University. "Mycology and Microscopy"○Pt May.
- 1997 The Third NSF-Funded Women's Images of Science and Engineering (WISE) Workshop at Arizona State University. "Microscopy in Biology"○ July 25.
- 1997 Hintze, K., J.C. Stutz, R.W. Roberson, and M.R. Sommerfeld. "Multimedia Mycology". WIRED Symposium. American Institute of Biological Sciences. August
- 1997 Arizona State University Forum on Investigations in Modeling, Visualization, and Imaging. "Microfabrication of unique surfaces for studies fungal cell growth. April
- 1996 Mycology Discussion Group, University of Georgia, Athens, GA. "The cytoskeleton during cell growth and differentiation in *Allomyces macrogynus*." October
- 1996 Department of Plant Pathology, University of California, Riverside. "Growth and development of fungal hyphae of *Allomyces macrogynus*: roles of the cytoskeleton", May
- 1996 13th Simposio Microbiologia Industrial, Micologia, Department of Biology, University of Puerto Rico, Mayaguerz, Puerto Rico: "Modern Techniques for studying fungal cell growth: use of light and electron microscopy", March
- 1995 Arizona Microscopy Society Annual Meeting and the Second Annual Arizona Research Lab Imaging Workshop, University of Arizona, Tucson, Arizona. "Methods for visualizing fungal cytoskeletal proteins", March
- 1995 Arizona Microscopy Society Annual Meeting and the Second Annual Arizona Research Lab Imaging Workshop, University of Arizona, Tucson, Arizona: "Cytoplasmic cleavage during zoospore formation in an aquatic fungus". (D.S. Lowry and R.W. Roberson)
- 1995 The Melvin S. Fuller Symposium on Fungal Growth and Diversity, University of Georgia, Athens, Georgia: "Zoosporogenesis in *Allomyces macrogynus*: roles of the cytoskeleton".
- 1994 Recent developments in the use of labeled probes to detect fungi and their constituents *in vivo*

- and *in vitro*, Fifth International Mycological Congress, Symposium, Vancouver, British Columbia, Canada. "Light and electron microscopic methods used in observing the fungal cytoskeleton".
- 1993 Department of Plant Pathology, University of Arizona, Tucson, AZ: "Apical Growth in Fungal Cells: Light and Electron Microscope Studies"
- 1992 Department of Botany, Arizona State University, Tempe, AZ: "Botanical Microscopy".
- 1992 Arizona Society for Electron Microscopy and Microbeam Analysis, Tucson, AZ: "Cytological Organization in Fungal Hyphal Tip Cells: Its Dynamics and Regulation"
- 1992 Mycological Society of America, Symposium: "Advanced Techniques in the Study of Fungi", Portland, Oregon: "Cryo-fixation and preparative approaches for microscopy".
- 1990 NATO Scientific Affairs Division Workshop: "Fungal Cell Wall and Immune Response", Elounda Crete, Greece. Title: "Apical Growth and The Cell Wall: Morphological Events".
- 1990 Department of Botany, Arizona State University, Tempe, AZ: "Apical Growth and Morphological Events: Cytological Observations".
- 1990 Department of Biology, North Arizona University, Flagstaff, AZ: "The Cytoskeletal Organization During Apical Growth and Cell Differentiation in Fungi".
- 1989 Molecular and Cell Biology Seminar Series. Arizona State University, Tempe, AZ: "The effects of the demethylase inhibiting fungicide, cyproconazole, on hyphal tip cells of the plant pathogenic fungus *Sclerotium rolfsii*".
- 1988 Appalachian Region Electron Microscopy Society. Boone, North Carolina: "The cytology of the fungal cell preserved by freeze substitution."
- 1988 Appalachian Region Electron Microscopy Society. Boone, North Carolina: "Light and electron microscopic examinations of the hyphal tip cell of *Sclerotium rolfsii*."

#### CONTRIBUTIONS TO SCHOLARLY ARTICLES AND BOOKS

- 2005 Electron micrographs (Figures 1a, b) used in research article, 'Protein structures forming the shell of primitive bacterial organelles', Kerfeld et al., Science 309: 936-938.
- 2005 Electron micrographs used in text book entitled, ◊Modern Mycology (Forth Edition)◊ by J.W. Decon, Blackwell Science. Pages: 52
- 2001 Electron micrographs contribution to "The Way of the Cell: Molecules, Organisms and the order of Life" By F.M. Harold, Oxford Press
- 2001 Front cover illustration of the book "The Fungi, 2<sup>nd</sup> Ed., Academic Press.
- 2001 Front cover illustration for Mycologia (Official journal of The American Mycological Society) 93(1).
- 2001 Front cover illustration for Fungal Genetics and Biology. 31(3).
- 1997 Electron micrographs used in text book entitled, ◊Modern Mycology (Third Edition)◊ by J.W. Decon, Blackwell Science. Pages: 33, 34
- 1996 Light and electron micrographs used in text book entitled, "Introductory Mycology (Fourth Edition)" by C. Alexopoulos, C.W. Mims, and M. Blackwell, Wiley and Sons, New York, San Diego. Pages: 48, 643, 644, 715
- 1994 Electron micrograph used as cover illustration for newsletter publication of "Zoosporic Fungi" (#16).
- 1991 Electron micrographs used in text book entitled, "Botany: An Introduction to Plant Biology" by J.D. Mauseth, Sanders College Publishing, Philadelphia, Pa. Page. 540.
- 1990 Electron micrographs used in article entitled, "Role of actin in tip growth" by Martin W. Steer; *In*: "Tip Growth in Plants and Fungal Cells" (ed. I.B. Heath), Academic Press, San Diego; Figures 9a and b, Pages. 130,131.
1990. Electron micrograph used in article entitled, "To shape a cell: an inquiry into the causes of morphogenesis of microorganisms", by F.M. Harold; Microbiological Reviews 1990, Page. 400

#### ART EXHIBITIONS

2006. Tilt Gallery, Phoenix, AZ. '*The World Within: Visualizing the Biology of Cells*'. Cells are composed of molecules that work together for a common goal: life. At this exhibit, microscopic images are presented that demonstrate the complexity and simplicity of cells and their networks. October-November.
2007. CoffeeBuzz, Ahwatukee, AZ. '*The World Within: Visualizing the Biology of Cells*'. January.
2007. Changing Hands Bookstore, AZ. '*The World Within: Visualizing the Biology of Cells*'. February-

March.

## REVIEWING ACTIVITIES

Journals:

Canadian Journal of Botany  
Canadian Journal of Microbiology  
Protoplasma  
Mycologia  
International Journal of Plant Sciences  
Mycological Research  
Journal of Microscopy

## COMMUNITY SERVICE

2005 Aid in mushroom identification regarding ingestion and poisoning requested from Steven Curry, M.D.; Department of Medical Toxicology, Banner Good Samaritan Medical Center, Phoenix

## PREVIOUS GRANT SUPPORT

- 1989 Arizona State University Faculty Mini-Grant Fund. Title: "High Pressure Freezing for Electron Microscopic Studies of Fungi". Funding: \$500.00. PI: R.W. Roberson
- 1989 Arizona State University Faculty Grant-In-Aid Program. Title: "Cytological Analysis of Hyphal Tip Cells of the Fungus *Sclerotium rolfii*". Funding: one year \$2,000.00. PI: R.W. Roberson
- 1990 Arizona State University Summer Research Award. Title: "Changes in Cell Wall Chemistry and Structure During Fungal Growth". Funding: \$3,000.00. PI: R.W. Roberson
- 1990 Arizona State University Faculty Grant-In-Aid Program, PI, "Apical Growth and Morphological Events in Fungi: Involvement of the Actin and Microtubule Cytoskeletons". Funding: one year \$4,950.00. PI: R.W. Roberson
- 1991 Southwest Center for Environmental Research and Policy. Funding: (percent effort: 5%) one year \$12,700. Title: "Mycorrhizae and Transplant Establishment of Trees in Dry Urban Landscapes". PIs: C. Martin, PI; J. Stutz and R.W. Roberson
- 1991 Arizona State University Research Incentive Award. Title: "The Cytology of Fungal Hyphal Tip Cells: Its Dynamics and Regulation". Funding: \$2,000. PI: R.W. Roberson
- 1991 Arizona State University International Travel Grant, CLAS. Title: Regulation of Cell Wall Deposition in Fungal Cells". Funding: \$1,000. PI: R.W. Roberson
- 1992 Arizona State University Faculty Grant-In-Aid Program. Title: "Characterization of actin protein and mRNA during spore germination and hyphal tip growth in fungi". Funded: one year \$5,389. PI: R.W. Roberson
- 1994 Arizona State University Faculty Mini-Grant Fund. Title: "Nanofabrication and Biosystems Workshop". Funding: \$500.00. PI: R.W. Roberson
- 1994 National Science Foundation. Title: "Acquisition of Cryoinstrumentation for Electron Microscopy". Funding: two years, \$173,000. PI: R.W. Roberson
- 1995 Arizona State University. Title: "Engineering Novel Biomaterials, Biointerfaces, and Small-Scale Biohybrid Devices: A Systems Approach". Funding: 3 years, \$174,000. PI: Multiple PIs (16)
- 1997 American Cyanamid Company: Title: "Effects of fungicides on cytoplasmic organization and behavior in plant pathogenic fungi". Funding: one year \$50,000. PI: R.W. Roberson
- 1997 Arizona State University: CLAS Grant to Improve Undergraduate Education. Title: "Interactive Computer and Experimental Approaches to Improve Undergraduate Education in Botany". Funding: two years, \$23,000. PIs J. Stutz, R.W. Roberson, and M. Sommerfeld
- 1998 American Cyanamid Company: Title: "Effects of fungicides on cytoplasmic organization and behavior in plant pathogenic fungi". Funding: one year \$75,000. PI: R.W. Roberson
- 1998 The W.M. Keck Foundation. Title: "An Interdisciplinary Facility for Studying Cells Interaction with their Environment". Funding: \$750,000. PI: Multiple PIs (9)
- 1998-1999. ASU. Title: "Asynchronous Approaches to Learning in Plant Biology 108". \$114,866. PI: L. Towill.
- 1997-2001. National Science Foundation. Title: "Interactive micro-visualization for science and engineering education." \$720,000. PI: B.L. Ramakrishna.
- 2000-2002. National Science Foundation: "Integrated AFM optical microscope (BioScope) for molecular and cell biology". PI: Y. Lyubchenko; Co-PI: R.W. Roberson and three others; \$198,500; 01/00-

12/02. % effort: 5.

2003. LG Life Sciences Ltd (LGLS) (20, Yeouido-dong, Youngdeungpo-gu, Seoul, Korea). 'Visualizing the effects of compounds on fungal microtubules'. \$25,000
2002. National Science Foundation: "Acquisition of a Field-Emission, Controlled-Temperature Environmental Scanning Electron Microscope". PIs: M. McKelvy, R.W. Roberson, multiple CoPIs. \$750,000.
- 2001-2005. US Department of Energy: "An integrative approach to energy, carbon, and redox metabolism in the cyanobacterium *Synechocystis* sp. PCC 6803". PI: W. Vermaas; Co-PI: R.W. Roberson, K.F. Faull, J. P. Whitelegge; \$1,087,004. %effort: 15 AY; 33 summer

#### **ACTIVE GRANT SUPPORT**

- 2003-2007 National Science Foundation: "Emerging wildlife diseases: Threats to amphibian biodiversity". PI: J.P. Collins. CoPIs: N. Cohen, E.W. Davidson, and others. \$3,000,000.
- 2006-2009 National Science Foundation-Division of Chemistry: "Purchase of an Instrument for Ultrafast, Multidimensional Fluorescence Detection and Imaging". PI: Neal Woodbury. CoPIs: R.W. Roberson and others, \$500,000.
- 2005-2006 Research and Training Initiative, ASU. "Fluorescence Protein Expression in a Model Filamentous Fungus" PI: Robert W. Roberson, \$15,000

#### **PENDING GRANT SUPPORT**

- NIH: "Neuroplasticity and Neurodegeneration: Protease-related Mechanisms". PI: T. Norekian; Co-PI R.W. Roberson; \$300,000
- NIH: "Effects of Nanoparticles on Mammalian Culture Cells." PI: Yongshen Chen; Co-PIs R.W. Robeson, Yung Chang and others. \$700,000.
- NSF-FIBER: "When is Emerging Infectious Disease a Force in Extinction?" PI: J.P. Collins. CoPIs: N. Cohen, E.W. Davidson, and others; \$ 4,999,996
- DOE/GTL: "ASU/UCLA Bio-Energy Research Center". PI: N. Woodbury. Co-PIs R.W. Robeson, Wim Vermaas and others; \$25M per year for five yrs.

