


## Curriculum Vitae

### Mautusi Mitra, Ph.D.

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## EDUCATION

Ph.D. in Plant Biology, December, 2003, Louisiana State University (Baton Rouge, LA, USA),  
Department of Biological Sciences.

Dissertation Title: Carbonic anhydrase and carbonic anhydrase like genes of  
*Chlamydomonas reinhardtii* (2003).

Advisor: Dr. James V. Moroney

M.S. in Botany, 1991. University of Calcutta (Kolkata, India), Department of Botany.

Special focus: Phycology (1991)

Advisors: Dr. Ruma Paul and Dr. Probir Chatterjee

B.S. with Honors in Botany, 1989. University of Calcutta (India) [Presidency College, Kolkata],  
Department of Botany, Minors: Physiology and Geology.

## PROFESSIONAL APPOINTMENTS

**May 6<sup>th</sup> 2024- July 12<sup>th</sup> 2024:**

ORISE Visiting Faculty in the VFP program (research track), DOE, Office of Science, Oak  
Ridge National Lab, Oak Ridge, TN, USA

**August 2021- present:**

Professor, Department of Natural Sciences, Biology program, University  
of West Georgia

**August 2015 -July 2021**

Tenured, Associate Professor, Department of Biology/Department of Mathematics,  
Sciences and Technology, University of West Georgia

**August 2009 - July 2015**

Assistant Professor (Tenure-Track), Department of Biology, University of West Georgia

**November 2008 - July 2009**

Research Associate specialist, Department of Plant & Microbial Biology, University of California, Berkeley; Supervisor: Dr. Anastasios Melis

**March 2004 - November 2008**

Post-doctoral research scholar, Department of Plant & Microbial Biology, University of California, Berkeley; Supervisor: Dr. Anastasios Melis

**Spring 2008**

Instructor in Medical Microbiology, University of California, Berkeley Extension

**January 1997 - May 2003**

Graduate Teaching Assistant, Department of Biological Sciences, Louisiana State University

**August 2003 - December 2003**

Graduate Research Assistant, Dr. James V. Moroney's Laboratory, Department of Biological Sciences, Louisiana State University

**TEACHING EXPERIENCES****June 28<sup>th</sup> 2021**

**Guest instructor for Agricultural Science Cohort, Georgia Governor's Honors program (GHP).** (Virtual Teaching)

Topics: Microbiology research projects at UWG (Title: Isolation and characterizations of three novel bacterial strains from contaminated Tris Acetate Phosphate (TAP) medium plates of the green micro-alga *Chlamydomonas reinhardtii.*), diversity in Biology careers in the 21<sup>st</sup> century and importance of undergraduate research.

**August 2009 – present**

**University of West Georgia, Department of Biology, Carrollton, GA**

Courses taught: (S = spring, F = fall)

**F2023:** BIOL 2107L (Principles of Biology I for Biology majors)

**S2023:** BIOL 1107L (Principles of Biology I lab); BIOL 1108L (Principles of Biology II lab)

**F2019 – S2020:** BIOL 4985 (BIOL 4134) (Advanced Molecular Biology & Bioinformatics)

**F2019, F2020:** XIDS 2002 (First Year Seminar)

**F2009 - present:** BIOL 3134 (Cell and Molecular Biology) (in class room and online)

**S2010:** BIOL 1110 (Biological Diversity)

**F2010- F2011:** F2012: BIOL 2107 (Principles of Biology I for Biology majors)

**F2010:** BIOL 6984 (Graduate Biology seminar for MS Students)

**F2011 - S2012; F2017 - F2018; S2020 - present:** BIOL 4503/BIOL 6503 (Biological Perspectives: Biochemistry) (in class room and online)

**F2011, F2012, F2013, S2015, F2016, S2018, F2020- S2023:** BIOL 4984 (Senior Seminar for Biology majors) (in class room and online)

### **June 2019**

**Guest instructor for Agricultural Science Cohort, Georgia Governor's Honors program (GHP), Berry College (Mt Berry, GA).**

Topics taught: Molecular Biology, Plant Physiology and Bioinformatics

### **Spring 2008**

**Instructor, University of California, Berkeley, Extension**

Course taught: Introduction to Medical Microbiology (EDP# 413260; three semester units in Public Health)

### **Spring 2008 and Spring 2009**

**Guest instructor, UC Berkeley, Department of Plant and Microbial Biology**

Course taught: Plant Biochemistry of Biofuels: Concepts and Foundations (PLANTBIO222)

### **Fall 2006**

**Guest instructor, UC Berkeley, Department of Plant and Microbial Biology**

Course: Plant Biochemistry (200B 001LEC)

### **Spring 1997- Spring 2003**

**Laboratory Teaching Assistant, Louisiana State University, Department of Biological Sciences**

Courses:

Introductory Biology for science majors (BIOL 1208; seven semesters)

Microorganisms and Man Laboratory (Microbiology for non-majors (BIOL1012; one semester)

General Microbiology (Microbiology for Microbiology majors) (BIOL 2051; three semesters)

Introductory Plant Physiology (BIOL3060; one semester)

## **ACADEMIC ADVISOR/FACULTY MENTOR**

**2009 - present:** I have served as an academic advisor to 25-30 undergraduates/semester at UWG. I have been serving as a Biology Faculty career mentor for 34 students (as of Summer 2023) and as an online Biology faculty mentor to students at UWG. I also serve as a Plantae (the digital ecosystem for plant sciences) mentor to postdocs who are plant biologists and exploring faculty positions at primarily undergraduate institutions.

## RESEARCH INTERESTS

My research is focused on Microbial physiology, Molecular Biology, Biochemistry, Genomics and Bioinformatics with an integration of research and teaching.

**I. Ph.D. Research at LSU:** My Ph.D. research was focused on the identification of a novel beta type carbonic anhydrase (CA), CAH6 gene, and some gamma CA-like genes in the model green micro-alga *Chlamydomonas reinhardtii* and their roles in the carbon concentrating mechanism.

**II. Post-doctoral Research at UC Berkeley:** My post-doctoral research project involved identification and characterization of a novel gene, *TLAI* (**T**runcated **L**ight harvesting **A**ntenna), that defines the chlorophyll antenna size in *C. reinhardtii*. *TLAI* is the first gene to be identified that has been shown to play a role in the chlorophyll antenna size regulation. The truncated light-harvesting chlorophyll antenna size property has commercial applications in the improvement of biomass production and solar energy conversion efficiency.

### **III. Research projects at UWG:**

**a) *Microbiology research project:*** This project is centered on biochemical and molecular characterizations and whole genome-based bioinformatics of two novel strains and novel species of bacteria that were isolated from contaminated green algal culture plates. We have sequenced the whole genomes of these three bacterial strains using the PacBio continuous long read technology and have submitted them on National Center for Biotechnology Information (NCBI). These bacteria produce commercially important pigments and two of them have potential to be used for bioremediation.

**b) *Photo-acclimation and photo-protection research project:*** This project is centered on studying photo-acclimation and photo-protection in *Chlamydomonas* under different light conditions, employing functional genomics.

## MENTORING OF K16 AND GRADUATE RESEARCH STUDENTS (F= fall)

### **F2009 - present:**

I have mentored 53 undergraduate research students and five high school students (One student from The Heritage School [Newnan, GA] and one student from the Carrollton High school [Carrollton, GA] and three Advanced Academy of Georgia program high school students). I have served as the thesis director of one graduate (M.S. degree) student; served in four graduate committees (three M.S. degree, thesis-track and one M.S. degree, non-thesis track); trained three research volunteers who were non-UWG/former UWG students. I have served/been serving as a research mentor for 16 minority undergraduate students in the NSF funded, Georgia-Alabama Louis Stokes Alliances for Minority Participation (LSAMP) program which is centered on increasing the number of minority students in STEM careers. My lab also participated in mentoring research of several students in the Uwise and SEEP programs which are Georgia Board of Regents' initiatives to increase the number of STEM majors, particularly teachers in Georgia. I have mentored 13 Student Research Assistance Program (SRAP) students and Honors program at UWG. I was the Honors thesis supervisor of an Honors College student in 2023 (Mr. Andrew Smith).

## RESEARCH PATENT

**Invention title:** Suppression of *TLA1* gene expression for improved solar conversion efficiency and photosynthetic productivity in plants and algae; US patent #: US20080120749A1/US7745696B2; Date of patent: 06-29-2010; expires on 12-25-2028. Inventors: Anastasios Melis and Mautusi Mitra. <https://patents.google.com/patent/US7745696B2/en>. This patent has been purchased by biotech companies in California for the improvement of solar energy conversion efficiency of algal mass cultures and I have received multiple royalty funds from UC Berkeley.

## PUBLICATIONS

**A. Peer-reviewed research Articles (\* denotes high school student co-author; \*\* denotes undergraduate student co-author; \*\*\* denotes graduate student co-author, unlabeled denotes postdocs/lecturer/faculty)**

**Mitra M**, Stanescu A. 0. Complete genome sequence of *Acidovorax temperans* strain LMJ isolated from a contaminated *Chlamydomonas reinhardtii* Tris-Acetate-Phosphate medium culture plate. *Microbiol Resour Announc* 0:e01293-23. <https://doi.org/10.1128/mra.01293-23>

**Mitra M**, Nguyen KMAK, Box TW, Berry TL, Fujita M. Isolation and characterization of a heavy metal- and antibiotic-tolerant novel bacterial strain from a contaminated culture plate of *Chlamydomonas reinhardtii*, a green micro-alga. [version 2; peer review: 2 approved]. *F1000Research* 2021, 10:533; <https://doi.org/10.12688/f1000research.53779.2>

**Mitra M**, \*\*Broom SM, \*\*Pinto K, \*Wellons SD, \*\*Roberts AD. 2020. Engaging inexpensive hands-on activities using *Chlamydomonas reinhardtii* (a green micro-alga) beads to teach the interplay of photosynthesis and cellular respiration to K4–K16 Biology students. *PeerJ -The Journal of Life and Environmental Sciences* 8:e9817; <https://doi.org/10.7717/peerj.9817>

**Mitra M**, \*\*Nguyen KMAK, \*\*Box TW, \*\*Gilpin JS, \*\*Hamby SR, \*Berry TL and Duckett EH. Isolation and characterization of a novel *Sphingobium yanoikuyae* strain variant that uses biohazardous saturated hydrocarbons and aromatic compounds as sole carbon sources [version 1; peer review: 2 approved]. *F1000Research* 2020, 9:767; <https://doi.org/10.12688/f1000research.25284.1>

**Mitra M**, \*\*Nguyen KMAK, \*\*Box TW \*\*Gilpin JS, \*\*Hamby SR, \*Berry TL and Duckett EH. Isolation and characterization of a novel bacterial strain from a Tris-Acetate-Phosphate agar medium plate of the green micro-alga *Chlamydomonas reinhardtii* that can utilize common environmental pollutants as a carbon source [version 1; peer review: 3 approved]. *F1000Research* 2020, 9:656; <https://doi.org/10.12688/f1000research.24680.1>

\*\*\*/\*\* Grovenstein PB, \*\* Lankford KD, \*\* Wilson DA, \*\* Gaston KA, \*\* Perera S and **Mitra M**.

- Identification and molecular characterization of a novel *Chlamydomonas reinhardtii* mutant defective in chlorophyll biosynthesis, F1000Research 2013, 2:138; <https://doi.org/10.12688/f1000research.2-138.v2>.
- \*\*\*8 Grovenstein PB, \*\*Wilson DA, \*Lennox CG, \*\*Smith KP, \*\*Contractor AA, \*\*Mincey JL, \*\*Lankford KD, Smith JM, \*\*Haye TC and **Mitra M**. Identification and molecular characterization of the second *Chlamydomonas gun4* mutant, *gun4-II*, F1000Research 2013, 2:142; <https://doi.org/10.12688/f1000research.2-142.v2>.
- Mitra M**, \*\*\*Kirst H, Dewez D and Melis A. Modulation of the light- harvesting chlorophyll antenna size in *Chlamydomonas reinhardtii* by TLA1 gene over-expression and RNA interference. Phil. Trans. R. Soc. B, November, 2012 367: 3430-3443; <https://royalsocietypublishing.org/doi/10.1098/rstb.2012.0229>.
- Mitra M**, Dewez D, \*\*\*Gines García-Cerdán J and Melis A. Polyclonal antibodies against the TLA1 protein also recognize with high specificity the D2 reaction center protein of PSII in the green alga *Chlamydomonas reinhardtii*. Photosynthesis Research, 2012, 112: 39-47; <https://link.springer.com/article/10.1007/s11120-012-9733-x>
- Mitra M**, \*\*Ng S and Melis A. The TLA1 protein family members contain a variant of the plain MOV34/MPN domain. American J. Biochem & Mol. Bio, January 2012, 2:1-18. <https://scialert.net/abstract/?doi=ajbmb.2012.1.18>
- Mitra M** and Melis A. Genetic and biochemical analysis of the TLA1 gene in *Chlamydomonas reinhardtii*. Planta, 2010, 231:729-740; <https://link.springer.com/article/10.1007/s00425-009-1083-3>
- Mitra M** and Melis A. Optical properties of microalgae for enhanced biofuels production, Optics Express, 2008, 16: 21807-21820; <https://doi.org/10.1364/OE.16.021807> (This article was also selected out of all the articles published every month in different journals published by Optical Society of America, for publication in “The virtual Journal for Bio Medical optics” published by Optical Society of America).
- Tetali S, **Mitra M** and Melis A. Development of the light-harvesting chlorophyll antenna in the green alga *Chlamydomonas reinhardtii* is regulated by the novel TLA1 gene, Planta, 2007, 225: 813-829; <https://link.springer.com/article/10.1007/s00425-006-0392-z>
- Ynalvez, RA, \*\*Cunnusamy K, Xiao, Y, **Mitra M** and Moroney, JV, Identification, Cloning and Characterization of Two Closely Related  $\beta$ -Carbonic Anhydrases in *Chlamydomonas reinhardtii*. The FASEB Journal, 2006, 20: A476-A477; <https://doi.org/10.1096/fasebj.20.4.A476-e>
- Bartlett SG, **Mitra M** and JV Moroney. CO<sub>2</sub> concentrating mechanisms. A book chapter in the Advances in Photosynthesis and Respiration series titled "The structure and function of plastids"; volume 23, pp 253-271; edited by Wise RR and Hooper JK; Berlin/Heidelberg, Germany, Springer, 2006; <https://link.springer.com/book/10.1007/978-1-4020-4061-0>.

**Mitra M**, Mason C, \*\*Lato SM, \*\*\*Ynalvez, RA, Xiao Y and Moroney JV. The three carbonic anhydrase families of *Chlamydomonas reinhardtii*. Canadian Journal of Botany, July 2005, 83: 780-795; <https://cdnsiencepub.com/doi/10.1139/b05-065>

**Mitra M**, \*\*Lato S, \*\*\*Ynalvez R and Moroney JV. Identification of a new chloroplast carbonic anhydrase in *Chlamydomonas reinhardtii*. Plant Physiology, 2004, 135:173-182; <https://academic.oup.com/plphys/article/135/1/173/6111960?login=false>

**B. Supervised Undergraduate and High School Student Peer-Reviewed Research Publications in NCUR [National Conference on Undergraduate Research] Proceedings: (\* denotes high school student co-author) Articles can be found in the NCUR archive.**

1. Paper Title: Identification of a Novel Gene That Plays a Role in High Light Tolerance in the Green Micro-alga *Chlamydomonas reinhardtii*.

Authors: Kevin Nguyen, Ja'von Swint, Joel Page III, Kenneth Kim, Katherine Smith, Tai Truong, and Kasey Swilley

Supervisor: **Dr. Mautusi Mitra**; Proceedings of the National Conference on Undergraduate Research (NCUR), 2017 p407-417 ([published on October 19<sup>th</sup> 2017](#)).

2. Paper Title: Employing functional genomics to study chlorophyll biosynthesis in the green micro-alga *Chlamydomonas reinhardtii*.

Authors: Tashana C. Haye, Darryel A. Wilson, \*Abigail R. Lennox, Alisha A. Contractor.

Supervisor: **Dr. Mautusi Mitra**; Proceedings of the National Conference on Undergraduate Research (NCUR), 2013 p256-264 ([published on 14<sup>th</sup> October, 2013](#)).

3. Paper Title: Utilization of Functional Genomics to Study Regulation of Chlorophyll Biosynthetic Pathways in the Unicellular Green Alga *Chlamydomonas reinhardtii*.

Authors: Kathryn D. Lankford, Kelsey A. Gaston, Phillip B. Grovenstein, and Surangi Perera

Supervisor: **Dr. Mautusi Mitra**; Proceedings of the National Conference on Undergraduate Research (NCUR), 2012 pp 589- 597 ([published December 4<sup>th</sup>, 2012](#)).

4. Paper Title: Functional genomics of eukaryotic oxygenic photosynthesis in the model unicellular green microalga *Chlamydomonas reinhardtii*.

Authors: Surangi Perera, Kelsey Gaston, Phillip Grovenstein, \*Justin Puckett, Yakema Sheats;  
Supervisor: **Dr. Mautusi Mitra**; Proceedings of the National Conference on Undergraduate Research (NCUR), 2011 p 805-813 ([published on 27<sup>th</sup> February, 2012](#)).

**C. Newsletter Article:**

**Mautusi Mitra**: Education Forum: ASPB Educational Outreach: A Rock Star Booth at NSTA 2018. ASPB News. The Newsletter of the American Society of Plant Biologists. May/June 2018, volume 45, number 3, pages 27- 28.

<https://drive.google.com/file/d/1CWnzCwoy8QXiCEdHxCZpx5FL--Lhf6vP/view?usp=sharing>

**D. Newspaper Article:**

**Mautusi Mitra**: Article title: A more effective evaluation method for higher education. The Evollution (a non-traditional education newspaper), May, 25th, 2012.

[https://evollution.com/programming/program\\_planning/a-more-effective-evaluation-method-for-higher-education/](https://evollution.com/programming/program_planning/a-more-effective-evaluation-method-for-higher-education/)

**E. Genome Technological Publications (Bioinformatics related): Bacterial whole genome submissions on NCBI, figshare and KBase (DOE):**

1. Mitra, Mautusi; Stanescu, Ana (2024). A table showing contig gene annotation information for the complete genome of *Acidovorax temperans* strain (GenBank accession number GCA\_028596105.1). figshare. Dataset. <https://doi.org/10.6084/m9.figshare.25268392.v2>

2. **Mitra M**, Stanescu A. December 6, 2023. Complete Genome Sequence of *Acidovorax temperans* strain LMJ from a contaminated *Chlamydomonas reinhardtii* culture plate. DOE Systems Biology Knowledgebase. <https://doi.org/10.25982/161632.357/2228677>.

3. **Mitra, M.** and Stanescu, A. De novo assembly of the genome of a novel bacterial strain: *Sphingobium yanoikuyae* strain CC4533, NCBI, Jan 11, 2023;  
<https://www.ncbi.nlm.nih.gov/nucleotide/CP115456.1>  
[https://www.ncbi.nlm.nih.gov/datasets/genome/GCA\\_027627615.1/](https://www.ncbi.nlm.nih.gov/datasets/genome/GCA_027627615.1/)

4. **Mitra, M.** and Stanescu, A. De novo assembly of the genome of a novel bacterial strain: *Acidovorax temperans* strain LMJ, NCBI; February 12, 2023;  
<https://www.ncbi.nlm.nih.gov/nucleotide/CP117193.1>  
[https://www.ncbi.nlm.nih.gov/datasets/genome/GCA\\_028596105.1/](https://www.ncbi.nlm.nih.gov/datasets/genome/GCA_028596105.1/)

5. **Mitra, M.** and Stanescu, A. De novo assembly of the genome of a novel bacterial strain: *Microbacterium* sp. strain Clip185, NCBI, February 20 2023;  
[https://www.ncbi.nlm.nih.gov/nucleotide/NZ\\_CP117996.1](https://www.ncbi.nlm.nih.gov/nucleotide/NZ_CP117996.1)  
[https://www.ncbi.nlm.nih.gov/datasets/genome/GCF\\_028743715.1/](https://www.ncbi.nlm.nih.gov/datasets/genome/GCF_028743715.1/)

**F. Published Protocols in Protocol.io (\*denotes high school student collaborator; \*\*denotes undergraduate student collaborator)**

1. **Mautusi Mitra** 2020. A green micro-algal growth media modified for use as a stringent minimal media for bacteria. **protocols.io** [dx.doi.org/10.17504/protocols.io.bgzujx6w](https://doi.org/10.17504/protocols.io.bgzujx6w)

2. **Mautusi Mitra**, \*\*Sara Broom, \*\*Kysis Pinto, \*Sovi-Mya Doan Wellons, \*\*Ariel Dominique Roberts 2020. Making inexpensive light-powered *Chlamydomonas reinhardtii* (a green micro-alga) bead bracelets/necklaces for teaching the interplay of photosynthesis and cellular respiration to K4-K16 students. **protocols.io** [dx.doi.org/10.17504/protocols.io.bgpyjvpw](https://doi.org/10.17504/protocols.io.bgpyjvpw)



## RESEARCH PRESENTATIONS

### A. CONFERENCE PRESENTATIONS (\*denotes High school student collaborator; \*\* denotes graduate student collaborator, underlined denotes post-doc collaborator and faculty; unlabeled denotes undergraduate collaborator)

**2019:** *Chlamydomonas reinhardtii*: A “Rock Star” Green Biology Teaching Tool, **Mitra M**, Education session, Plant Biology, San Jose, CA, August 4<sup>th</sup> (**Invited symposium speaker; competitive selection**)

*Chlamydomonas reinhardtii*: A “Rock Star” Green Biology Teaching Tool, **Mitra M**, Plant Biology, San Jose, CA, August 4<sup>th</sup>. (**Interactive E-poster**) [This I-poster was selected as an excellent example of I-poster in Plant Biology 2020 Worldwide Summit, July 27<sup>th</sup>- July 30<sup>th</sup> 2020].

*Chlamydomonas reinhardtii*: A “Rock Star” Plant Biology Teaching tool for K-16 students. **Mitra M**. Meeting of the southern section of the American Society of Plant Biologists, Watt Family Innovation Center, Clemson University, Clemson, South Carolina, March 17<sup>th</sup>. (**Invited speaker**)

**2018:** Employment of *Chlamydomonas reinhardtii*/Chlamy, a Green Micro Alga (“green yeast”) for K16 Biology Education. **Mitra M**. Plant Biology 2018, Montreal Canada, 14th July - 18th July. (**Poster**)

**2017:** Molecular characterization of two high light–sensitive *Chlamydomonas reinhardtii* mutants, defective in a novel functionally uncharacterized gene LSR1. **Mitra M**, Nguyen K, Swint, J, Page J, Smith KP, Truong T, Kim K. Photosynthesis Gordon Research Conference, Newry, ME, July 16<sup>th</sup> - July 21<sup>st</sup>. (**Poster and a Flash talk**)

Identification of a novel gene LSR1 that plays a role in high light tolerance in the green micro-alga *Chlamydomonas reinhardtii*. **Mitra M**, Nguyen K, Swint J, Page J, Smith KP, Truong T, Kim K. Southern sectional-American Society of Plant Biologists meeting, Orlando, FL, April 8<sup>th</sup> -10<sup>th</sup>. (**Invited speaker**)

**2014:** Identification and molecular characterization of a chlorophyll deficient non-photosynthetic *Chlamydomonas reinhardtii* mutant. **Mitra M**, \*\*Grovenstein PB, Smith KP, Truong T, Haye TC, Fuller T and Grimm B. American Society of Plant Biologists southern sectional meeting, Lexington, KY, March 29th- 31<sup>st</sup>. (**Invited speaker**)

**2013:** Characterization of two *Chlamydomonas reinhardtii* mutants defective in chlorophyll biosynthesis. **Mitra M**, \*\*Grovenstein PB, Wilson DA, Lankford KD, \*Lennox CG, Smith KP, Brzezowski P, Grimm B, Haye TC and Gaston KA. The 16th International Congress on Photosynthesis Research, St. Louis, August 11<sup>th</sup> – 16<sup>th</sup>, 2013. (**Poster**)

**2012:** Employing functional genomics to study the regulation of tetrapyrrole metabolism in the green microalga *Chlamydomonas reinhardtii*. **Mitra M**, \*\*Grovenstein P, Schlicke H, Grimm B, Wilson DA, Lankford KD, Gaston KA, and Smith J. The Annual Meeting of the American Society of Plant Biologists, Austin, Texas, July 20th - July 24<sup>th</sup>. (**Poster**)

Employing functional genomics to study the regulation of tetrapyrrole metabolism in the green microalga *Chlamydomonas reinhardtii*. **Mitra M**, Brzezowski P, \*\*Grovenstein P, Schlicke H, Wilson DA, Gaston KA, Lankford KD, Smith J and Grimm B. 15th

International Conference on the Cell and Molecular Biology of Chlamydomonas, Potsdam, Germany, June 5th- 10<sup>th</sup>. **(Poster)**

TLA1, a novel gene for the regulation of the chlorophyll antenna size in the green microalga *Chlamydomonas reinhardtii*. **Mitra M**, \*\*Kirst H, Dewez D, Ng, S and Melis A. Southern Sectional ASPB meeting, South Carolina, Myrtle Beach, March 3rd-5<sup>th</sup>. **(Invited speaker)**

**2011:** Regulation of the chlorophyll antenna size in *Chlamydomonas reinhardtii* by TLA1 gene over-expression and RNA interference. **Mitra M**, \*\*Kirst H, Dewez D, Ng S and Melis A. Presented at the 37th Annual Midwest/Southeast Photosynthesis Meeting, Marshall, Indiana, November 11th-13<sup>th</sup>. **(Invited speaker)**

Specific polyclonal antibodies against the 23 kDa TLA1 protein also recognize with high affinity a 28 kDa protein in the green alga *Chlamydomonas reinhardtii*. **Mitra M**, Dewez D, Bachman N and Melis A. Presented at the 28th Eastern Regional Photosynthesis meeting, Marine Biological Laboratory, Woods Hole, MA, April 1st- 3<sup>rd</sup>. **(Invited speaker and Poster)**

**2010:** Engaging high school seniors and college freshman undergraduates to basic molecular biology-based bioinformatics research projects. **Mitra M** and \*Ross B (Advanced Academy of Georgia high school student). Presented at the STEM Institute at the University of West Georgia, Carrollton, GA, February, 2010. **(Invited speaker)**

Regulation of the chlorophyll antenna size in *Chlamydomonas reinhardtii* by TLA1 gene over-expression and RNA interference. **Mitra M**, \*\*Kirst H, Dewez D, Ng S and Melis A. Presented at the 19th Western Photosynthesis Conference, Asilomar, CA, January 7th-10<sup>th</sup>. **(Poster)**

**2009:** Genetic analysis of *Chlamydomonas reinhardtii*: Characterization of *RDPI*, a novel gene whose 3'UTR overlaps with the 5'UTR of the *TLA1* gene. **Mitra M** and Melis A. Presented at the 18<sup>th</sup> Western Photosynthesis Conference, Asilomar, CA, January. **(Poster)**

**2008:** *TLA1*, a novel gene in the regulation of the photosynthetic chlorophyll antenna size. **Mitra M**, \*\*Kirst H and Melis A. Presented at the 34<sup>th</sup> American Society for Photobiology Meeting, Burlingame, CA, June 20<sup>th</sup>-25<sup>th</sup>. **(Invited speaker)**

**2007:** TLA1, a novel protein that functions in the regulation of the chlorophyll antenna size in *Chlamydomonas reinhardtii*. **Mitra M**, \*\*Kirst H, Titali S and Melis A. Presented at the 14th International Congress on Photosynthesis (organized by the International Society of Photosynthesis Research), Glasgow, Scotland, July 22<sup>nd</sup>-27<sup>th</sup>. **(Poster)**

**2006:** Chlorophyll antenna size adjustments in *Chlamydomonas* involve coordinate regulations of *TLA1*, *CAO* and *Lhcb* gene expressions. **Mitra M**, Kanakagiri S and Melis A. Presented at the Gordon Research conference, Photosynthesis, Smithfield, RI July 2<sup>nd</sup>-7<sup>th</sup>. **(Invited speaker)**

Chlorophyll antenna size adjustments in *Chlamydomonas* involve coordinate regulations of *TLA1*, *CAO* and *Lhcb* gene expressions. **Mitra M**, Kanakagiri S and Melis A. Presented at the 15<sup>th</sup> Western Photosynthesis Conference, Antenna system and light harvesting session, Asilomar, CA, January. **(Invited speaker)**

- 2005:** Chlorophyll antenna size adjustments in *Chlamydomonas* involve coordinate regulations of *TLAI*, *CAO* and *Lhcb* gene expressions. **Mitra M**, Kanakagiri S and Melis A. Presented at the Plant Biology 2005, Photosynthesis mini-symposium I, Seattle, WA, July 16<sup>th</sup>-20<sup>th</sup>. **(Invited speaker)**
- 2003:** Identification of a novel intracellular beta carbonic anhydrase in *Chlamydomonas reinhardtii* that is distinct from the mitochondrial forms of the enzyme. **Mitra M**, Lato S, \*\*Ynalvez R and Moroney JV. Presented at the American Society of Plant Biologists Annual Meeting at Honolulu, HI. July 25<sup>th</sup>-30<sup>th</sup>. **(Poster)**
- Identification of a novel intracellular beta carbonic anhydrase in *Chlamydomonas reinhardtii* that is distinct from the mitochondrial forms of the enzyme. **Mitra M**, Lato S, \*\*Ynalvez R and Moroney JV. Presented at the Southern Sectional Meeting of the American Society of Plant Biologists. Denton, TX, March 15<sup>th</sup>-17<sup>th</sup>. **(Oral presentation)**
- 1999:** Characterization of an alpha carbonic anhydrase in higher plants. **Mitra M** and Moroney JV. Presented at the Southern Sectional Meeting of the American Society of Plant Biologists. Baton Rouge, LA, March. **(Oral presentation)**

## B. INVITED SEMINARS

- 2024:** Evaluation of novel bacteria for lignin and plastic upcycling. DOE's ORISE VFP-Research track summer fellowship seminar at the Oak Ridge National Lab, Room 189, Environmental Sciences Building 1505, Synthetic Biology group, 10<sup>th</sup> July **(Invited seminar)**
- Identification and characterization of a new *Microbacterium* species from a contaminated *Chlamydomonas reinhardtii* TAP-agar plate. Invited speaker to deliver a special lecture on microbial genomics at the B.K. Birla College, Kalyan, Mumbai, India, 20<sup>th</sup> February **(Invited speaker; virtual, Microsoft Teams)**.
- 2022:** Whole genome sequencing of a novel bacterial strain isolated from a contaminated green-micro algal culture plate provides insight into its metabolome involved in heavy metal tolerance and xenobiotic biodegradation. Invited Speaker at the International Conference on Plants and Microbes: Health and Food, Department of Botany, University of Calcutta, India, 29<sup>th</sup> December. **(Invited speaker; virtual, Zoom)**
- Identification and characterizations of two novel strains of bacteria that produce commercially important carotenoids and have potential to be used for bioremediation. Invited Speaker at the National Science Day event, Department of Botany, Centurion University of Technology and Management (Bolangir Campus), Odisha, India, February 28<sup>th</sup> 2022, (webinar). **(Invited speaker; virtual, Zoom)**
- 2021:** Isolation and characterization of three novel bacterial strains from contaminated TAP (Tris Acetate Phosphate) media plates of the green micro-alga *Chlamydomonas reinhardtii*. Invited speaker at the 19<sup>th</sup> P. Chatterjee Memorial lecture at the Phycology Webinar 2021, organized by Probir Chatterjee Research Foundation and Department of Botany, University of Calcutta, India, 28<sup>th</sup> January. **(Invited speaker; virtual, Zoom)**
- 2019:** *Chlamydomonas reinhardtii* (a pond scum/green yeast): A "Rock Star" Green Biology Teaching Tool. TenTalks, Innovations in Pedagogy, Tanner Health System School of Nursing Building, UWG, May 14<sup>th</sup>. **(Invited speaker)**

- 2018:** Chlamy (“Green yeast”), a ROCK STAR Biology Teaching Tool. Wolf Science Café, Red Rock Room, Hudson Mills, Carrollton, GA, September 10<sup>th</sup>.
- 2016:** Importance of Undergraduate Research to students’ future careers. UWG Honors College class for freshman: XIDS 2002-What do you Really Know about The Honors College? Importance of undergraduate research in future career of STEM students. UWG Biology Department, September 19th. **(Invited speaker)**.
- 2015:** Functional genomics of eukaryotic oxygenic photosynthesis and photosynthetic pigment metabolism in the model green micro-alga *Chlamydomonas reinhardtii*, The Centenary Lecture Series on “Emerging Trends in Plant Sciences” at the Department of Botany, Ashutosh College, Kolkata, India, December 22nd. **(Invited speaker)**
- Functional genomics of eukaryotic oxygenic photosynthesis and photosynthetic pigment metabolism in the model green micro-alga *Chlamydomonas reinhardtii*. University of West Alabama, Department of Environmental Sciences and Biology, Livingston, AL, 29th October. **(Invited speaker)**
- Functional genomics of eukaryotic oxygenic photosynthesis and photosynthetic pigment metabolism in the model green micro-alga *Chlamydomonas reinhardtii*. University of South Carolina, Department of Biology & Geology, Aiken, SC, March 20th. **(Invited speaker)**
- 2013:** Functional genomics of eukaryotic oxygenic photosynthesis under different light irradiances in the model green micro-alga *Chlamydomonas reinhardtii*. COSM Dean’s seminar, UWG, 1<sup>st</sup> November. **(Invited speaker)**
- 2012:** Employing functional genomics to study the regulation of tetrapyrrole metabolism in the green microalga *Chlamydomonas reinhardtii*. Department of Plant Physiology, Humboldt University, Germany, 18<sup>th</sup> May. **(Invited speaker)**
- 2009:** Approaches, Barriers and Supports in Biological Science Research. Doctoral panel on Research methods and approaches. Department of Education at University of West Georgia, Carrollton, GA; October 3<sup>rd</sup>. **(Invited speaker)**
- TLA1, a novel gene involved in the regulation of the chlorophyll antenna size in the green alga *Chlamydomonas reinhardtii*. Louisiana State University, LA, Department of Biological Sciences, Baton Rouge, LA, 19<sup>th</sup> February. **(Invited speaker)**
- 2004:** Carbonic anhydrase and carbonic anhydrase like genes and their roles in carbon dioxide concentrating mechanisms (CCM). Plant Biology Department, Bose Institute, Calcutta, India, 20<sup>th</sup> October, 2004. **(Invited speaker)**
- Carbonic anhydrase and carbonic anhydrase like genes and their roles in carbon dioxide concentrating mechanisms (CCM). Nagarjuna Fertilizers and Chemical limited, Hydrogen research Unit, Hyderabad, India, 14<sup>th</sup> October. **(Invited speaker)**
- Genes for the regulation of chlorophyll antenna size in photosynthetic organisms & its application in photosynthetic hydrogen production. Nagarjuna Fertilizers and Chemical limited, Hydrogen Research Unit, Hyderabad, India, 13<sup>th</sup> October. **(Invited speaker)**

## HONORS/AWARDS

- 2024:** Undergraduate Research Faculty Mentor Award, UWG

**2019:** My former high school research student named an Actinobacteriophage that she discovered after my last name and submitted it in the phage database in appreciation for introducing her to benchwork research: Mitron <https://phagesdb.org/phages/Mitron/> This is a great honor for me.

I was competitively selected as the symposium speaker at the Education session of the Plant Biology 2019, San Jose, CA, August 4<sup>th</sup>.

Leave of absence with pay award for Spring 2019.

**2018:** Awarded “The Above and Beyond Award” by the UWG Risk Management Environmental Health and Safety.

**2014:** Awarded College of Science & Mathematics Excellence in Teaching Award for outstanding contributions to student success, April.

**2013:** Awarded Excellence in Research award by the UWG College of Science and Mathematics, in April.

**2012:** [Young Women’s Investigator Award](#) from the American Society of Plant Biologists.

**2006:** Travel Award from the Gordon Research Conference, Photosynthesis, July.

**2003:** Travel Award by the Graduate School and the Department of Biological Sciences of the Louisiana State University, July.

Research award by the Biology Graduate Student Association at Louisiana State University. April 2003.

Travel Award by the Biology Graduate Student Association at Louisiana State University, July.

Travel Award by the Graduate School of the Louisiana State University, March.

Travel Award by the Department of Biological Sciences, Louisiana State University, March.

## FELLOWSHIPS AND SCHOLARSHIPS

**2024:** DOE-Visiting Faculty Program (VFP) Research-track faculty fellowship for 10 weeks at the Oak Ridge National Lab (ORNL), USA: Evaluation of novel bacteria for lignin and plastic upcycling; \$16,500 + housing expenses (\$2,500) awarded on 3-7-24.

DOE-Visiting Faculty program (VFP) research-track student fellowship for 10 weeks at the Oak Ridge National Lab, USA: Evaluation of novel bacteria for lignin and plastic upcycling; \$7,000 + housing expenses (\$2,500) awarded to my undergraduate research student Mr. Chukwuemeka Okpala to work in my DOE-VFP research project at ORNL in summer 2024 on 3-28-24.

**2022:** Innovations in Teaching Fellowship, UWG, Spring 2022, \$4,750

**2017:** American Society of Plant Biologists Summer Undergraduate Research Fellowship (ASPB-SURF) in April (\$5,275) (**competitive external peer-reviewed fellowship application prepared and submitted with my research student**)

**2012:** Awarded Research Scholarship (Visiting Professor) by Dr. Bernhard Grimm [Humboldt

University (Berlin, Germany)], travel grant titled “Retrograde Signaling in Plant” from the Research Unit FOR 80 [funded by the German Research Foundation (DFG)] (€2500).

**1995:** Junior Research Fellowship Award in Life Science by the Council of Scientific and Industrial Research, New Delhi (India).

## GRANTS

**2024:** Co-PI on the MRI: Track1: 400 MHz Liquid- and Solid-state NMR to Advance Chemistry, Biology, Geology, and Materials Science Research and Undergraduate Research Training (submitted 11-15-2024; \$922,150)

Awarded Experiential Learning Support Funds: Biochemical characterizations of two novel, non-model plastic-degrading bacterial strains, Perry College of Mathematics, Computing, and Sciences Professional Development Funding, October. (\$768.73).

**2023:** Awarded Georgia-Alabama Louis Stokes Alliances for Minority Participation (GA-AL-LSAMP) grant, FY2023-FY2024 for undergraduate research student stipend. (\$8000)

**2021:** Awarded Student Research Assistance Program (SRAP) grant, July, ( \$1400)

Awarded UWG Faculty Research grant, March, (\$4134)

Awarded summer Student Research Assistance Program (SRAP) grant April, ( \$2000)

Awarded Georgia-Alabama Louis Stokes Alliances for Minority Participation (GA-AL-LSAMP) grant, summer 2021. (\$1000)

Awarded Georgia-Alabama Louis Stokes Alliances for Minority Participation (GA-AL-LSAMP) grant, spring 2021; \$200

**2020:** Awarded Student Research Assistance Program [SRAP] grant, August. (\$1945)

**2019:** Awarded SRAP grant, May. (\$1570)

**2018-2019:** Awarded Georgia-Alabama Louis Stokes Alliances for Minority Participation (GA-AL-LSAMP) grant, September. (\$1000)

Awarded Plant-BLOOME grant by the American Society of Plant Biologists, August. (\$35,919) (**competitive external peer-reviewed grant for curriculum development and educational outreach**)

Awarded SRAP grant, May. (\$1,450)

Awarded College of Science & Mathematics (COSM)-Faculty Research Grant (FRG), April. (\$1,900)

Awarded ORSP-FRG Travel grant, April. (\$2,763)

**2017:** Awarded Student Educational Enrichment Program (SEEP) research grant, September. (\$1,700)

Awarded GA-AL-LSAMP research grant, August. (\$8000)

Awarded COSM-FRG grant, May. (\$1,500)

**2016:** SEEP research grant, September. (\$1,700)

- LSAMP research grant, January. (\$4000)  
 Awarded COSM-FRG grant, July. (\$1,400)  
 Awarded SRAP grant, May. (\$1475)  
 Awarded UWG FRG-Office of the Provost and VP for Academic Affairs, April. (\$3,314).
- 2015:** Awarded COSM-FRG grant, August. (\$1,100).  
 Awarded GA-AL- LSAMP grant, August. (\$6000)  
 Awarded Uwise grant, August. (\$5000)  
 Awarded GA-AL-LSAMP summer research grant, May. (\$300)  
 Awarded SRAP grant, April. (\$1,700)
- 2014:** Awarded Faculty Research Grant, UWG College of Science and Mathematics, October. (\$1,250)  
 Awarded GA-AL LSAMP grant, September. (\$6000)  
 Awarded Uwise research grant, September. (\$5000)  
 Awarded SRAP grant, April. (\$1,800).  
 GA-AL LSAMP research grant January. (\$5800)
- 2013:** Awarded Uwise grant October. (\$4,800)  
 Awarded COSM-FRG May. (\$1,250)  
 Awarded SRAP grant, April. (\$2000)  
 Awarded the Internal Development grant, UWG office of Research and Sponsored Operations, January.(\$8,207)
- 2012:** Awarded UWG Uwise grant, November. (\$6,700)  
 Awarded Student Research Assistance Program grant, July. (\$2000)  
 Awarded COSM-Faculty research grant, April. (\$1500)  
 Awarded UWG Uwise research grant, January. (\$600)  
 Awarded COSM Research Incentive grant, UWG College of Science and Mathematics, January. (\$3000)
- 2011:** Awarded SRAP grant, July. (\$2000)  
 Awarded UWG Learning Resources Committee-Faculty Resource grant, January. (\$2000)  
 Awarded COSM Research Incentive grant, April. (\$3000)  
 Awarded Summer Seed Grant for scholarship, UWG Office of Academic Affairs, March. (\$10,778)
- 2010:** Awarded SRAP grant, June. (\$2000).  
 Awarded Research Grant by the Sponsored Operations for Faculty research (SOFREA) January. (\$2,500)  
 Awarded College of Arts and Science Faculty research grant, January. (\$500)

## **OTHER PROFESSIONAL DEVELOPMENT FUNDS/RESEARCH SUPPORT RECEIVED**

- 2024:** GA-AL LSAMP funding for lab supply purchase (\$750)
- 2020:** XIDS 2002 Teaching fund for professional development, August. (\$2,000)
- 2019:** XIDS 2002 Teaching fund for professional development, August. (\$2,250)
- 2018:** Student Research Assistance Program research supply fund, May. (\$604.56)
- 2016:** LSAMP fund for research, March. (\$306)
- Year end fund from the Biology Department, March. (\$536.80)
- Research fund from the Biology Department for research, April. (\$215)
- 2015:** Academic Affairs fund for research, September. (\$524).
- Faculty research support from the UWG-ORSP, May. (\$500)
- Summer research support from the Biology Department, May. (\$500)
- Research support from the COSM, UWG, May. (\$500)

## **SCHOLARLY CREATIVE ACTIVITIES**

- 2022:** Innovations in Teaching Fellowship Round Table, hosted by Institute for Faculty Excellence at UWG, April 19<sup>th</sup>, 2022
- 2021:** On 5th April, I participated in UWG SOTA's "A Word With" video series, which airs biweekly on SOTA's YouTube channel, Facebook, and Instagram. I shared some samples of wild flower photography that were taken at the Carrollton greenbelt and at the UWG campus. The video was published in SOTA's YouTube channel on 10-18-21. <https://www.youtube.com/watch?v=s7RPmKwpgUk>
- 2019:** Developed green algae bead bracelets that can change color in the light and dark to teach photosynthesis in a fun way to 935 science students in 9 schools in Georgia and to 12 students enrolled in the Ag Science cohort of the Georgia Governor's Honors Program at Berry College, Rome, GA.

## **MEDIA APPEARANCES AND PODCASTS (includes media appearances of three research students)**

### **A. Newsletters/news/blogs:**

- 2019:** Education and Outreach at the Plant Biology 2019 [#ASPBForward Innovation](#) Pavilion. [Education Concurrent Symposium](#) at Plant Biology 2019 Showcases Novel Ways to Increase Student Interest and Engagement with Plants.
- 2018:** [Johns Creek college student garners research award](#) for genetic research.
- ASPB Educational Outreach: [A Rockstar Booth at NSTA 2018](#)
- Dr. Mautusi Mitra ["BLOOMES" with \\$35,919 grant](#) from the American Society of Plant Biologists.



ASPB Plant Science Today: [Plant BLOOME 2018 Winners Announced](#), August 15<sup>th</sup> 2018

- 2013:** Undergraduate Poster Presentations award at the 2013 SS-ASPB meeting <https://southern.aspb.org/wp-content/uploads/2021/05/June2013newsletter.pdf> ; page 3
- 2012:** Young Women's Investigator Award from the American Society of Plant Biologists <https://aspb.org/newsletter/archive/2012/mayjun12.pdf> ; page 9
- 2010:** [Going Green...Literally, Journal of Young Investigators.](#)
- 2008:** Green Car Congress: [Optimizing Algae for Biofuels](#) by Genetically Truncating Their Chlorophyll arrays.

### **B. Videos:**

- 2021:** A Word With Biology Professor Mautusi Mitra on Photographing Wildflowers: <https://www.youtube.com/watch?v=s7RPMKwpgUk>
- 2016:** UWG Research- Discovering and Identifying Novel Genes in Green Algae. <https://youtu.be/zVuahXEOKXA>
- 2014:** Behind the paper: Chlorophyll biosynthesis papers published quickly. <https://www.youtube.com/watch?v=8bylZV06v1U>

### **C. Podcasts:**

- 1. Wolves Research Bites September 2024:**  
<https://www.wondercraft.ai/studio/e/Me5mXcmF>

## **OTHER PROFESSIONAL DEVELOPMENTS**

- 2019:** Bioinformatics Course certification: Plant Bioinformatics (Date: 02/28/2019; Instructor: Dr. Nicholas Provart, University of Toronto on Coursera) <https://www.coursera.org/account/accomplishments/certificate/S6XDGMMAKTG28>
- Bioinformatics Course certification: Bioinformatic Methods II (Date: 02/03/2019; Instructor: Dr. Nicholas Provart, University of Toronto on Coursera) <https://www.coursera.org/account/accomplishments/certificate/QRD8X9SBUF5H>
- Bioinformatics Course certification: Bioinformatic Methods I (Date: 01/19/2019; Instructor: Dr. Nicholas Provart, University of Toronto on Coursera) <https://www.coursera.org/account/accomplishments/verify/PZGX6CK4PKDU>
- 2018:** UWG LEAP Summit, UWG Campus Center Ballroom, Carrollton, GA, September 28<sup>th</sup>.
- 2016:** OU campus 101 Training; earned 2 hours of professional development during basic OU Campus content management system training, UWG, November 3<sup>rd</sup>.
- 2010:** Participant in the Professional Grant Development Workshop organized by the Grant training Center (Arlington, Virginia) at the Georgia Institute of Technology from October 20<sup>th</sup> - October 22<sup>nd</sup>.

## PROFESSIONAL SERVICES

### A. *NSF ad hoc reviewer service*

**2016:** NSF-IOS-EDGE PROGRAM, August

### B. *NSF panelist service*

**2014:** NSF-BIO-IOS panelist, April

### C. *Ad hoc peer reviewer service for journals*

**2024:** Cells

Plants

Genes

Biomolecules

Cells (Special Issue: Mitochondria Meets Oxidative Stress)

Enzyme and Microbial Technology (ENZMICTEC, Elsevier)

Agronomy

Emerging Infectious Diseases [Centers for Disease Control and Prevention (CDC)]

Biomolecules

**2023:** Enzyme and Microbial technology (ENZMICTEC, Elsevier)

Stresses: section: Plant and Photoautotrophic Stresses

Photosynthesis Research

Photosynthesis Research

Plants: Plant Physiology and Metabolism

Plants: Special Issue Gene Regulatory Mechanisms of Flower and Fruit Development in  
Plants.

Agronomy

BioTech

Cells, section: Mitochondria

**2022:** Photosynthesis Research

Plants: Plant Genetics, Genomics and Biotechnology section

Journal of Oral Microbiology

Journal of Applied Sciences

Journal of Functional Biomaterials

International Journal of Molecular sciences, Molecular Plant Sciences section

International Journal of Molecular sciences, Molecular Toxicology section

- 2021:** Environmental Microbiology and Environmental Microbiology Reports  
 Biomolecules, MDPI  
 Water, MDPI  
 Georgia Journal of Science  
 Journal of Environmental Research and Public Health, MDPI  
 Journal of Visualized Experiments
- 2020:** Environmental Microbiology and Environmental Microbiology Reports
- 2019:** New Phytologist
- 2017:** Frontiers in Plant Science
- 2016:** Scientific Reports (Nature); Planta (Springer)
- 2015:** F1000 Research
- 2014:** Planta (Springer)
- 2012:** Agriculture  
 Journal of Applied Phycology
- 2007:** BBA-Bioenergetics
- 2006:** Nature Protocols

**D. Text Book chapter review**

- 2023:** Reviewer of a book chapter (Chapter 25) in the 5<sup>th</sup> edition of the text Book: in the Biochemistry text book: Tymoczko's Biochemistry: A Short Course by John Tymoczko (Macmillan Learning's STEM Team).

**E. Technical editor services:**

- 2010-2011:** Journal of Plant Sciences (Science Alert journal) and American Journal of Plant Physiology (Science Alert journal)

**F. Curriculum reviewer service**

- 2019:** Academic reviewer of Microbiology and Botany K12 curriculum for Georgia Department of Education (GA-DOE), April.

**G. Ad hoc peer reviewer service for academic and educational organizations**

- 2024:** The Center for Undergraduate Research and Creative Activities (CURCA) [reviewed research presentation abstracts for the Georgia Undergraduate Research Conference]  
 External review of tenure and promotion dossier of Dr. Lisa Waidner (Tenure-track Assistant Professor, Center for Environmental Diagnostics and Bioremediation (CEDB) and Biology, University of West Florida
- 2022:** External review of scholarship for tenure & promotion of Dr. Marylou

Machingura (Tenure-track Assistant Professor, Department of Biology, Georgia Southern University)

- 2020:** University of West Alabama [UWA] (oral presentation abstract selection for the UWA Research Symposium)
- 2017:** Council on Undergraduate Research (Reviewed student research papers submitted for publication in the Proceedings of the National Conference on Undergraduate Research).  
The Center for Undergraduate Research and Creative Activities (CURCA) [reviewed research presentation abstracts for the Georgia Undergraduate Research Conference]
- 2016:** Council on Undergraduate Research (Reviewed student research papers submitted for publication in the Proceedings of the National Conference on Undergraduate Research)  
External review of tenure and promotion application dossier of Dr. Nathan Hancock (Assistant professor, University of South Carolina, Department of Biology and Geology, Aiken, SC)
- 2014:** Council on Undergraduate Research (Reviewed student research papers submitted for publication in the Proceedings of the National Conference on Undergraduate Research).
- 2013:** Council on Undergraduate Research (Reviewed student research papers submitted for publication in the Proceedings of the National Conference on Undergraduate Research)
- 2011:** Council on Undergraduate Research (Reviewed student research papers submitted for publication in the Proceedings of the National Conference on Undergraduate Research)

#### **H. Service to professional societies and organizations**

- 2023:** Served as the judge and the moderator for the oral presentation session at the annual GA-AL Louis Stokes Alliance for Minority Participation Research symposium, April 15th 2023
- 2022:** Chlamydomonas Resource Center Advisory Committee member (PUI rep)
- 2021:** As the Secretary-Treasurer of southern section of the American Society of Plant Biologists, I have organized the 82nd meeting of the SS-ASPB on zoom, April 16-18, 2021 which had 240 participants from countries across the globe
- 2021:** Elected as the Vice-Chair of SS-ASPB but resigned in 2021 because of time constraint
- 2020-2021:** Served as the Secretary-Treasurer of the Southern section of the American Society of Plant Biology
- 2019:** Elected as the Secretary-Treasurer of the southern section of the American Society of Plant Biologists for 2020-2021, November 1<sup>st</sup>.  
Exhibitor, American Society of Plant Biologists' Exhibitor booth at the Plant Biology 2019 meeting in San Jose, CA; demonstrations to make solar-powered green algae bead bracelets for teaching students, the interplay of photosynthesis and cellular respiration, August.  
Judge and moderator, graduate research oral presentation competition at the SS- American Society of Plant Biologists meeting in Clemson, SC.
- 2018:** Exhibitor, American Society of Plant Biologists' Exhibitor booth at the National Science Teachers Association in Atlanta, GA. Employment of the green micro-alga Chlamydomonas to teach Green Biology, March

- 2017:** Judge, graduate research oral presentation competition at the SS- American Society of Plant Biologists meeting in Orlando, FL, April.
- 2015:** Judge and moderator, graduate research oral presentation competition at the SS- American Society of Plant Biologists meeting in Mobile, AL, March.
- 2014:** Judge, undergraduate student research Poster competition at the SS- American Society of Plant Biologists meeting in Lexington, KY, March.
- 2011:** Chair of the “CO<sub>2</sub> metabolism and Chloroplast biogenesis” session at the Mid-West/South East Photosynthesis meeting at Marshall, Indiana, November.

## **DEPARTMENT, COLLEGE AND UNIVERSITY SERVICES**

### ***A. Committee Services***

- 2022 - 2024:** Chair, UWG CACSI Diversity, Equity and Inclusion Committee
- 2021 spring:** Chair, Ad hoc Integrated Science & Technology (ISAT) exploration committee
- 2018-2021:** UWG Biology Department Personnel Committee
- 2020-2022:** UWG CACSI P & T committee
- 2019-2020:** UWG Ad hoc Inter-disciplinary MS program committee
- 2019:** UWG First Year Seminar Advisory committee
- 2018-2020:** Chair, UWG COSM Dean’s Faculty Advisory Committee
- 2016-2018:** UWG Biology Department Facility and Technology Committee
- 2017-2021:** UWG Academic affairs Student Fees Committee
- 2018-2020:** UWG Biology Department Seminar and Special Events Committee
- 2016-2018:** UWG COSM Technology Committee
- 2016-2018:** UWG Biology Department Technology Committee
- 2015-2017:** UWG Faculty Development Committee
- 2015-2018:** UWG Biology Department Graduate Curriculum Committee
- 2014-2016:** UWG COSM Dean’s Advisory Committee
- 2012-2015:** UWG Biology Technology Committee
- 2013-2016:** UWG Biology Seminar and Special Events Committee
- 2011-2014:** UWG Biology Department Undergraduate Curriculum and Instruction Committee
- 2009-2011:** UWG Biology Technology Committee
- 2009-2009:** UWG Multicultural Ball organizing committee (Institutional Diversity)
- 2007-2009:** UC, Berkeley Post-doctoral Association active committee member

### ***B. Other Department, College, University and Community Services***

- 2024:** Volunteered as a time keeper for the Georgia High School State Science Bowl, invited speaker to share high school science research at our lab with science bowl participants; had

- a table showcasing our lab's research , COED, UWG, March 1st  
 Judge, West Georgia Regional Science & Engineering Fair, UWG. (February 2<sup>nd</sup>)
- 2023:** Admitted Student Day, March 11<sup>th</sup>, Biology solo rep
- 2022:** Biology building tour guide to students and their science teachers attending West Georgia Regional Science & Engineering Fair, UWG, February 4th
- 2020:** Judge, West Georgia Regional Science & Engineering Fair, UWG.
- 2019:** Served as a COSM rep for "On the buses" day.  
 UWG COSM representative for high impact practices (HIP) discussion with Dr. Judith Ramaley (the site evaluator for UWG's TS3 Lumina Foundation Grant which focuses on expanding opportunities for students around experiential learning and other HIPs).
- 2018:** Participated in the UWG Biology Expo, UWG Biology Commons, October 1<sup>st</sup>.
- 2017:** Shared NSF science Research Grant Review Process at the Food for Thought Workshop organized by UWG ORSP.
- 2016:** Panelist, Biology Department Career Panel organized by the UWG Marine Biology Club  
 Importance of Undergraduate Research to students' future careers. September 19th. Guest speaker at the UWG Honors College class for freshman: XIDS 2002- What do you Really Know about The Honors College? UWG Biology Department.
- 2015:** Shared my lab research with 20 Chemistry majors enrolled in CHEM-4910L (Tools and Applications in Chemical Research and Practice)
- 2014:** Judge, West Georgia Regional Science & Engineering Fair, UWG
- 2012 - 2019:** UWG COSM Preview Day, Biology Department Representative
- 2012:** Started the Biology department seminars with the help of with my former colleague Dr. Barbara Ballentine.  
 Introduced a group of high school students from local schools in Carrollton (GA) to a 45 minutes University level class in Plant Molecular Biology on the "College for A day".
- 2011:** Shared research with the high school students and their teachers in the Henry and Camille Dreyfus Foundation Inc. funded "Research Experience via Active Collaboration of High schools (REACH) program" at UWG.
- 2010 - present:** UWG Biology Department Undergraduate Academic Advisor
- 2010 - present:** UWG and UWG COSM Preview Day, Biology Department Representative
- 2010 - 2014:** Initiatives: for procuring a tax-free purchase of ethanol permit for laboratory research; Web of Science in the campus, re-furbished power generator for the Biology department and purchase of a Bio-Rad Real time PCR machine.
- 1998 - 2003:** Baton Rouge Bengali Association, Student Representative in the Executive committee

## EDUCATIONAL OUTREACH ACTIVITIES

- 2018-2020: *PLANT-BLOOME project:*** I was awarded the Plant-BLOOME, a peer-reviewed educational outreach grant by the American Society of Plant Biologists (ASPB) in 2018.

The Plant-BLOOME project centered on designing inexpensive, fun hands-on- science educational activities using the green micro-alga *Chlamydomonas reinhardtii*, to teach green Biology to K4-K16 students. Fifteen inexpensive hands-on activities were developed using published *Chlamydomonas* research and different genetically engineered strains and/or plasmids/DNA constructs available via the Chlamydomonas Resource Center, which is a global resource for Chlamydomonas researchers and, was a collaborator in this project (<https://www.westga.edu/academics/cosm/biology/mitra-lab/assets/docs/crc-support.pdf>). Five of the fifteen lab activities were shared with K16 students in Georgia. Each lab component was modified in three different ways to make it suitable for a) K4 and middle school, b) high school and, c) undergraduate students, with a main focus on high school and undergraduate students. The lab based on the interplay of photosynthesis and cellular respiration has received huge popularity globally. This lab is centered on making and using light-powered algal bead bracelets and necklaces that change color in dark and in light depending on the pH change caused by differential rates of photosynthesis and cellular respiration. Plant-BLOOME project involved 947 students (includes twelve Agricultural science cohort students of the Georgia Governors Honors College program) and their science teachers from nine K12 schools in Georgia located within 85 miles radius of Carrollton, 27 college students from Perimeter College, GSU and 8 students at UWG. BLOOME funding allowed me to introduce a new upper level advanced Molecular biology & Bioinformatics course (BIOL 4985/BIOL 4134) at UWG in Fall 2019. BLOOME project reflects community-engaged scholarship and, its products have been disseminated globally via publications, presentations and via several online educational and social media platforms.

- 2018:** Educated Carrollton community about the green micro-alga *Chlamydomonas* and its application in Biology teaching at Wolf Science Café in Carrollton, GA.
- 2013:** Shared lab research with Carrollton High school IB program students
- 1999:** Tutored high school children in the Boys' Hope of Baton Rouge (Louisiana), an affiliate of an international program for hurt and at-risk, yet academically capable youth.

## **ACTIVITIES RELATED TO IMPROVEMENT OF UWG STUDENT LIFE**

**(2010 – present):**

- I edit, cover letters, personal statements and CVs of BIOL 3134, BIOL 4985/4134 and BIOL 4503 class students and research students who need career guidance, in addition to serving as a referee for professional school and job applications.
- I review and edit CVs, SOPs and scholarship applications for students before official submissions (University, COSM, LSAMP, Uwise, etc.) and external scholarships/fellowships (e.g. HHMI-LSU summer research fellowship, ASPB-SURF fellowship, extra mural SEEP scholarship and research related travel funding from other universities like University of West Alabama etc.)
- I have created a scholarship for undergraduate and graduate research students conducting research in the field of Molecular Photosynthesis called “Molecular Photosynthesis Research Award” (now renamed as Molecular Microbiology Research Award) at UWG. \$500 award per year. Award can be split between two students.

- I provide UWG employment to all my undergraduate research students via SEEP, UWISE, LSAMP and SRAP funding.
- Over 80% of my research students have been accepted into STEM undergraduate/graduate programs (Ph.D.) and other reputed professional schools/research institutions ranging from the University of Cambridge (UK), UC Berkeley, NIH, UCLA, Michigan State University, Georgia Regents University, Kennesaw State University, Georgia University, Mercer University, Upstate Medical University (NY), University of Florida, Gainesville and Kansas State University and many are pursuing diverse STEM professions. I have created an informal mentorship program that connects former UWG biology majors who have successful careers in STEM fields with current UWG STEM majors.

### **PROFESSIONAL SOCIETY MEMBERSHIPS**

**2023 - present:** American Society for Microbiology

**1998 - 2021:** American Society of Plant Biologists

**2018 - 2019:** National Association of Biology Teachers

**2007 - 2020:** International Society of Photosynthesis Research

**2016 - 2018:** Sigma Xi, The Scientific Research Society