MAHESH B. DAWADI, PhD
Assistant Professor of Physical Chemistry
Department of Natural Sciences and Engineering
The University of South Carolina, Upstate

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I. PROFILE SUMMARY

- 10 years of experience in teaching several chemistry courses
- Knowledgeable in internal administrative tasks
- More than 9 years of experience in research and service activities

II. EDUCATION

2009 - 2014	The University of Akron, Akron, OH **Ph.D.,** Physical Chemistry
2009 - 2014	The University of Akron, Akron, OH **Non-Thesis M.S.,** Chemistry
2008 - 2009	Department of Chemistry, Tennessee Technological University, Cookeville, TN **Some Graduate level Courses**
1999 - 2002	Tribhuvan University, Kathmandu, Nepal **M.Sc**., (Organic Chemistry)
1996 - 1999	Tribhuvan University, Kathmandu, Nepal **B.Sc.,** Chemistry/Biology

III. PROFESSIONAL EXPERIENCE:

University of South Carolina Upstate- Fall 2024

- Photocatalytic degradation of wastewater
- Dye-Sensitized Solar Cells (DSSC)
- Computational Chemistry/ Spectroscopy
- Organic Photovoltaic devices or Organic Solar Cells

Black Hawk College, Natural Sciences and Engineering Department, Moline, IL

Full-Time Faculty, 08/2022 – 06/30/24

Earlham College, Department of Chemistry, Richmond, IN

Visiting Assistant Professor, 08/2019 – 07/31/2022 and Laboratory Coordinator (Fall 2020).

- Dye-Sensitized Solar Cells (DSSC)
- Computational Chemistry/ Spectroscopy
- Organic Photovoltaic devices or Organic Solar Cells
- Photocatalytic degradation of wastewater

Ivy Tech Community College, Richmond, IN

Adjunct Instructor, 01/2020- 05/2020

University of Texas Rio Grande Valley, Edinburg, Texas

Lecturer in Chemistry, 01/2018-07/2019

The University of Akron, Akron, Ohio
Postdoctoral Research Associate with Dr. David A. Modarelli, 03/2015-12/2017
- Energy and Electron transfer and excited state dynamics in self- assembled donor-acceptor dyads
- Computational Spectroscopy

The University of Akron, Akron, Ohio
Postdoctoral Research Associate with Dr. David S. Perry, 08/2014-02/2015
- Spectroscopy and dynamics of vibrationally excited atmospheric molecules
- Computational Spectroscopy
- Spectroscopy of organometallic complexes
-

The University of Akron, Akron, Ohio
Secondary Instructor, The University of Akron, 2012-2014

Amrit Science Campus, Kathmandu, Nepal
Assistant Lecturer 08/2002 – 07/2008

Capital College & Research Center, Kathmandu, Nepal
Lecturer, 08/2002 – 07/2005

Don Bosco College, Kathmandu, Nepal
Lecturer, 08/2005 – 07/2008
Department Chair, 2006-2007

Lord Buddha College, Kathmandu, Nepal
Lecturer, 04/2003 – 07/2004

IV. TEACHING EXPERIENCE

University of South Carolina Upstate (Fall 2024)

CHEM U541 Physical Chemistry 1 (Lecture & Lab)

CHEM U112 L- General Chemistry & Qualitative Analysis Lab

CHEM U11L L- General Chemistry Lab

Black Hawk College

CHEM 110	Introduction to Chemistry (Lecture & Lab)
CHEM 101	General Chemistry (Lecture & Lab)
PS 101	Physical Science (Lecture & Lab) Both online & in-person

Earlham College

CHEM 111	Principles of Chemistry (Lecture & Lab)
CHEM 2110	Organic Chemistry I & II (Lab)
CHEM 331	Equilibrium and Analysis (Lab)
CHEM 485	Undergraduate Research
CHEM 480	Senior Seminar

CHEM 340 Lasers in Medicine (Lecture & Lab)

University of Texas Rio Grande Valley

CHEM 2110 Organic Chemistry I & II (Lab)
CHEM 331 General Chemistry I & II (Lecture & Lab)
CHEM 3150 Physical Chemistry I (Lecture & Lab)
CHEM 1109 Chemistry for Engineers (Lab)

University of Akron

CHEM 3150 Physical Chemistry I & II (Lecture & Lab)
CHEM 331 General Chemistry I & II (Lecture & Lab)

Tribhuvan University (Amrit Science Campus)-Kathmandu, Nepal

CHEM 511 Inorganic Chemistry (Lecture)
CHEM 512 Physical Chemistry (Lecture & Lab)

Don Bosco College – Kathmandu, Nepal

CHEM 202 Organic Chemistry I & II (Lecture & Lab)
CHEM 110 Introduction to Chemistry I & II (Lecture & Lab)

Capital College and Research Center- Kathmandu, Nepal

CHEM 202 Organic Chemistry I & II (Lecture & Lab)
CHEM 110 Introduction to Chemistry I & II (Lecture & Lab)

TEACHING HIGHLIGHTS:

Experience teaching in both blended and face-to-face format, skilled in lab instrumentation, instructing lecture and laboratory courses, new course design, exploring active-learning methods, implementing novel teaching classroom-technology tools, developing/enhancing laboratory experiments.

V. RESEARCH MENTORING EXPERIENCE

Mentored **one undergraduate student** (Emmanuel Rosas); "*Photocatalytic degradation of industrial wastewater and antibacterial activity,"* Fall 2022.

- Mentored **three undergraduate students** (Teagan Copper, Rebecca Hancock, and Jacob Pierson); "*Antimicrobial activities and photocatalytic degradation of pure undoped, Ag-doped, Co-doped, and Cu-doped ZnO nanoparticles using Moringa oleifera leaf extract for purifying wastewater*"; Fall 2021.

- Mentored **five Undergraduate Students (**Amelia Nguyen, Andrew Belec, Serena Pisacano, Kevin Nguyen, and Olivia Layne); *"Photocatalytic degradation of industrial wastewaters; Quantification of antioxidant properties of turmeric, garlic, ginger and beet roots"*; Spring, 2021.

- Mentored **two Undergraduate Students (**Garris Radloff and Feven M. Naba); *"Optimizing a Simple Natural Dye Production Method for Dye-Sensitized Solar Cells"*; Fall Term 2, 2020.

- Mentored **six Undergraduate Students (**Katie Marie Sterzinger, Garris Radloff, Nahom Zewde, Abigail Taylor Armstrong, Makenzie Ellen Bennett, and Dorothy Ocran-Sarsah), *"Highly Efficient Dye-Sensitized Solar Cells with Composited Food and Vegetables Dyes*"; at Earlham College, Fall Term 1, 2020.

- Mentored **six Undergraduate Students** (Grant Bowersock, Tiffany-Jane L. Potraffke, Austin W. Smith, Tarig A. Eldosougi, Jacob H. Cope, and Michael M. Cho); "*To study photophysical characterization of self-assembled perylene tetracarboxylic diimide with appended diamine - naphthalene-1,5 or 2,6-diylbis(oxy)) bis (ethane-2,1-diyl)) diphosphonic acid*, and to study the *photo-sensitizing properties of fruit and vegetable extracted natural dyes";* at Earlham College, Spring 2020.

- Mentored **one McNair Scholar** (Nahom Zewde); *To design the affordable and efficient dye-sensitized solar cells using organic molecules extracted from plants;* at Earlham College, Summer 2020.
- Mentored **two undergraduate students** (Matt Bushik and Shae Stanley); "*To study the tructural and spectroscopic comparison of xanthene and dibenzofuran-bridged cofacial π-conjugated polymers";* at Earlham College, Summer 2020.
- Mentored **six undergraduate students** in research, at Earlham College, Fall 2020.
- Mentored **five undergraduate students** in research at Earlham College, Summer 2021.
- Mentored **one undergraduate and one graduate** students at the University of Akron, (2015-2017).

VI. CURRENT, PENDING, AND PAST GRANT SUPPORT AND SELECTED HONORS / DISTINCTIONS

A. Pending Proposal for External Funding

1. "Photophysical properties of donor-acceptor organic compounds or polymeric materials"

Dept. of Energy-Division of Basic Energy Sciences-Photochemistry
(Pending submission).

2. "Hybrid Photocatalytic/Membrane System for Wastewater Treatment".
Total Requested Award Amount: $2, 60000
National Science Foundation – CBET-Energy for Sustainability
ID number: **4738 (rejected).**

B. Past Grant Support

1. **Earlham College, McNair Scholar Grant, "**To Design the Affordable and Efficient Dye-Sensitized Solar Cells Using Organic Molecules Extracted from Plants", Summer, 2020 ($1,000).

2. **"Canadian Light Source, 17-4862", 2015-2017**, "Vibrational Spectroscopy in the Presence of Torsional Large Amplitude Motion, **27 shifts** of beam time on the 02B1-1 (Far IR) beamline.

3. **"Canadian Light Source, 22-7038", 2018-2021**, "Vibrational Spectroscopy in the Presence of Torsional Large Amplitude Motion **25 shifts** of beam time on the 02B1-1 (Far IR) beamline.

4. **"The University of Akron, PEG travel Fund",** 2012 ($250).

5. **"Gordon Research Conference in Vibrational Spectroscopy, Student Travel Fund",** 2012 ($980).

6. **Indiana Academy of Science, Senior Research Grants, IASSG-S21-03,** "Performance Enhancement of Dye-Sensitized Solar Cells", 2021 ($ 2,379).

7. **Earlham College, Summer Student Collaborative Research Grants, SCR- 72850**, "Performance Enhancement of Dye-Sensitized Solar Cells: A comparative Study", Summer 2021 ($700).

C. Selected Honors / Distinctions

1. **"Dr. Henry C. & Mrs. Jean Stevens Chemistry Fellowship 2014"**

2. **"Honorary Award"** by Golden Key International Honor Society, USA

VII. PEDAGOGY TRAINING AND WORKSHOPS

Black Hawk College

- Teaching with open resources April 14, 2023, at Black Hawk College.
- Creating an Engaging Classroom: Implement Active Learning Techniques, January 13, 023, at Black Hawk College.
- Data wire at Black Hawk College (Spring 2023).
- Creating and engaging classroom: Implement active learning technique at Black Hawk College (Spring 2023).
- Teaching with Video at Black Hawk College, Spring 2023.

Earlham College

- The inclusive STEM Teaching Project, Summer online teaching, 2021.
- ½ day Workshop on Online Components of Teaching, Earlham College, July 28, 2020
- Doing active learning while physically distance, Earlham College, July, 27, 2020
- Course design Spa, Earlham College, August 8, 2019

University of Texas at Rio Grande Valley (UTRGV)

- Creating a Learner Centered and Engaging Syllabus, UTRGV, Spring 2018
- Create Micro-Lectures with iPad and Clips, UTRGV, Spring 2019
- Providing Constructive and Meaningful Feedback in Peer Observation, UTRGV, Spring 2018
- Engaging First-Year Students: Research-Based Strategies for Effective Student Engagement and Learning, UTRGV, Spring 2018
- Flipped Classroom: STEM Teaching and Learning, UTRGV, Spring 2018
- Hitting Pause to Create Dynamic Lectures, UTRGV, Spring 2018
- Tools and Strategies to Create a Nice Learning Environment, UTRGV, Fall 2018
- Blackboard Advanced (Rubrics), UTRGV, Fall 2018
- Designing Effective Group Projects, UTRGV, Spring, 2018
- Creating Meaningful Reflection Activities-Materials, UTRGV, Fall 2018
- Creating Transparent Assignments, UTRGV, Fall 2018

University of Akron

- Active Learning Curriculum Development workshop, University of Akron, Summer, 2015

VIII. EXPERIENCE WITH LEARNING TECHNOLOGIES

- Proficient in learning Management Systems such as Canvas, Moodle, and Blackboard.
- Skilled in screen annotation and recording applications such as Screencast- O-matic, Ink2go, and Bamboo Paper.
- Practiced user of online meeting spaces such as Zoom and canvas or Moodle conferences for extended office hours.
- Proficiency in Microsoft office applications such as PowerPoint, Word, and Excel for data analysis and graphing and google docs for collaborative assignments.
- Skilled in online quiz applications such as Socratic, Poll everywhere, and I-clickers.

IX. PROFESSIONAL SERVICES

Black Hawk College

- Volunteering tutoring (Fall 2022, Spring 2023 & Fall 2023)
- Volunteer work-open house, Spring 2023
- Scholarship evaluating Committee member: Black Hawk College QC Foundation
- New course development: Physical Science online course
- Teaching and Learning Advisory- Committee member.
- 5-year program review- Committee member
- 5- year syllabus update- Committee member

Earlham College:

- Advisor: South Asian Student Association

Service to Professional Organizations

- **Session Chair,** International symposium on Molecular Spectroscopy (2016) http://isms.illinois.edu/schedule/schedule_session.php?sID=320
- **Judge, Rao Prize:** International symposium on Molecular Spectroscopy

Local Community Service

- Western Reserve District 5 Science Day, "**Super judge**" Akron, Ohio, (2014-2016).
- Akron Public Schools Science EXPO, **judge** (2013-2014).
- Chemistry Demonstration, Legette Elementary School, Akron, Ohio, (2012).
- Science Night at B L Garza Middle School Edinburg, TX, (2018)

Don Bosco College

- Curriculum Development Committee
- Admission Committee

Student Organizations:

- **Earlham College : Faculty Advisor**: South Asian Student Association-

X. PEER-REVIEWED PUBLICATIONS

Earlham College:

1. Garris Radloff, Grant Bowersock, Feven M. Naba, Dorothy B. Ocran-Sarsah,Makenzie E. Bennett, Kathryn M. Sterzinger, Abigail T. Armstrong, and **Mahesh B. Dawadi**: *Optimizing photovoltaic efficiency of the highly efficient dye-sensitized solar cells by a combined (computational and experimental) study,* **Dig. J. Nanomater. Bios. 17 (2022). https://chalcogen.ro/457_RadloffGHC.pdf**

2. **Olivia Layne and Mahesh B. Dawadi,** *Enhanced photocatalytic degradation of organic matter by Ag-doped ZnO nanoparticles under UV-Vis Light Irradiation.* **(Manuscript under preparation)**

University of Akron

3. Mengmeng Zhao, Chao Wang, Haowei Jiang, **Mahesh B. Dawadi**, Bryan D. Vogt, David A. Modarelli and Nicole. S. Zacharia: *Polyelectrolyte–micelle coacervates: intrapolymer-dominant vs. interpolymer-dominant association, solute uptake and rheological properties, Soft Matter* (2019) https://dx.doi.org/10.1039/C8SM02229A

4. R.M Lees, Li-Hong Xu, S. Twagirayezu, D.S. Perry, **Mahesh B. Dawadi**, and B.E. Billinghurst,: *FTIR synchrotron spectroscopy of the S-H stretching fundamental of the $^{12}CH3\ ^{32}SH$ species of methyl mercaptan, Mol. Phys.* (2018) https://dx.doi.org/10.1080/00268976.2018.1451931

5. Mengmeng Zhao, Xuhui Xia, Jingyi Mao, Chao Wang, **Mahesh B. Dawadi**, David A. Modarelli, and Nicole Zacharia: *Composition and Property Tunable Ternary Coacervate: Branched Polyethylenimine and a Binary Mixture of a Strong and Weak Polyelectrolyte, Mol. Syst. Des. Eng.* (2019)

https://dx.doi.org/10.1039/C8ME00069G

6. Shuyue Huang, Mengmeng Zhao, **Mahesh B. Dawadi**, Yuhang Cai, Yakov Lapitsky, David A Modarelli, Nicole Zacharia: *Effect of Small Molecules on the Phase Behavior and Coacervation of Aqueous Solutions of Poly(diallyldimethylammonium chloride) and Poly(sodium 4-styrene sulfonate), J. Colloid Interface Sci.* (2018)
https://dx.doi.org/10.1016/j.jcis.2018.02.029

7. **Mahesh B. Dawadi,** Lou Degliumberto, David S. Perry, Howard D. Mette and Robert L. Sams: *High -resolution infrared spectroscopy of the asymmetric NO stretch band of jet-cooled nitromethane and assignment of the lowest four torsional states*
J. Mol. Spectrosc. **343**, *85-91* (2018)
http://dx.doi.org/10.1016/j.jms.2017.08.001
8. Ronal Lees, Li-Hong Xu, Bradley Guislain, Elias Reid, Sylvestre Twagirayezu, David S. Perry, **Mahesh B. Dawadi**, Bishnu P. Thapaliya and Brant Billinghurst: *Torsion-rotation structure and quasi-symmetric-rotor behaviour for the CH_3SH asymmetric CH3-bending and C-H stretching bands E parentage.*
J. Mol. Spectrosc. **343**, 18-27 (2018)
http://dx.doi.org/10.1016/j.jms.2017.06.013

9. **Mahesh B. Dawadi**, Bishnu P. Thapaliya and David S. Perry, *An Extended $E \otimes e$ Jahn-Teller Hamiltonian for Large-Amplitude Motion: Application to Vibrational Conical Intersections in CH_3SH and CH_3OH, J. Chem. Phycs.* **147**, 044306 (2017)
http://dx.doi.org/10.1063/1.4994699

10. Mingyang Ji, **Mahesh B. Dawadi,** Alexandria R. LaSalla, Yuan Sun, David A. Modarelli and Jon R. Parquette: *A strategy for the co-assembly of co-axial nanotube-polymer hybrids. Langmuir,* **33** (36), 9129-9136 (2017)
http://dx. doi.org/10.1021/acs.langmuir.7b02245

11. Bradley Guislain, Elias Reid, Ronald Lees, Li-Hong Xu, Sylvestre Twagirayezu, David Perry, Bishnu Thapaliya, **Mahesh B. Dawadi** and Brant Billinghurst: *Giant K-doubling and in-plane/out-of-plane mixing in the asymmetric methyl-bending bands of CH3SH*
J. Mol. Spectrosc. **335,** 37- 42 (2017)
http://dx.doi.org/10.1016/j.jms.2017.02.016

12. Laura Crandall, **Mahesh B. Dawadi**, Tailon Burrell, Adwoa Odoom and Christopher J. Ziegler: *Structure and electronics in dimeric boron π expanded azine and salphen complexes,* Photochemical and photobiological science, **16**, 627-632 (2017)
(Featured Article)
http://dx.doi.org/10.1039/C6PP00479B

13. Mengmeng Zhao, Seyed Ali Eghtesadi **, Mahesh B. Dawadi,** Chao Wang, Shuyue Huang , Amy Seymore, Bryan Vogt , Tianbo Liu, David A. Modarelli and Nicole Zacharia: *Partitioning of Small Molecules in Hydrogen Bonding Complex Coacervates of Poly(acrylic acid) and Poly(ethylene glycol) or Pluronic Block Copolymer*
ACS Macromolecules, **50**, 3818-3830 (2017)
http://dx.doi.org/10.1021/acs.macromol.6b02815
14. Abed Hasheminasab, **Mahesh B. Dawadi,** Hamideh Mehr, Richard S. Herrick, and Christopher J. Ziegler: *Re(CO)3 Metallopolymers with Complete Metal Monomer in-corporation: Synthetic, Spectroscopic, Electrochemical, and Computational studies*
ACS Macromolecules, **49**(8), 3016-3027 (2016)

http://dx.doi.org/10.1021/acs.macromol.6b00343

15. Mengmeng Zhao, Seyed Ali Eghtesadi **, Mahesh B. Dawadi,** Chao Wang, Shuyue Huang , Amy Seymore, Bryan Vogt , Tianbo Liu, David A. Modarelli and Nicole Zacharia: *Partitioning of Small Molecules in Hydrogen Bonding Complex Coacervates of Poly(acrylic acid) and Poly(ethylene glycol) or Pluronic Block Copolymer*
ACS Macromolecules, **50**, 3818-3830 (2017)
http://dx.doi.org/10.1021/acs.macromol.6b02815

16. Bishnu P. Thapaliya, **Mahesh B. Dawadi**, David S. Perry and Christopher Ziegler: *The vibrational Jahn-Teller effect in E⊗e systems, Chem. Phys.*, **460**, 31-42 (2015)
http://dx.doi.org/10.1016/j.chemphys.2015.07.017

17. **Mahesh B. Dawadi,** Ram S Bhatta and David S. Perry: *Contrasting patterns of coupling between the CH stretches and the large-amplitude motions in the series, CH_3NH_2, $CH_3OH_2^+$ and CH_3CH_2·, Chem. Phys. Lett.*, **624** 53-57 (2015)
"Editor Choice"
http://dx.doi.org/10.1016/j.cplett.2015.02.009

18. **Mahesh B. Dawadi,** Sylvestre Twagirayezu, David S. Perry, and Brant E. Billinghurst: *High-resolution Fourier transform infrared synchrotron spectroscopy of the NO_2 in-plane rock band of nitromethane, J. Mol. Spectrosc.* **315,** 10-15 (2015)
http://dx.doi.org/10.1016/j.jms.2014.11.009

19. **Mahesh B. Dawadi** and David S. Perry*: Communication*: *Conical intersections between vibrationally adiabatic surfaces in methanol, J.Chem.Phys*, **140**, 161101 (2014)
(Featured Article)
http://dx.doi.org/10.1063/1.4871657

20. Timothy Matney, L. Barrett, **Mahesh B. Dawadi**, D. Maki, C. Maxton, David S. Perry, D. C. Roper, L. Somers, and L. G. Whitman*: In situ shallow subsurface reflectance spectroscopy of archaeological soils and features: a case-study of two Native American settlement sites in Kansas, Journal of Archaeologial Science*, 43, 315-324 (2014)
http://dx.doi.org/10.1016/j.jas.2013.11.027

21. **Mahesh B. Dawadi**, C. Michael Lindsay, Andrei Chirokolava, David S. Perry, and Li-Hong Xu *:Novel patterns of torsion-inversion-rotation energy levels in the ν_{11} asymmetric CH-stretch spectrum of methylamine, J.Chem.Phys.*, **138**, 104305 (2013)
http://dx.doi.org/10.1063/1.4794157

22. **Mahesh B. Dawadi,** Ram S.Bhatta, and David S. Perry: *Torsion-inversion tunneling patterns in the CH-stretch vibrational excited states of the G_{12} family of molecules including methylamine, J. Phys.Chem.* A. **117**, 13356-13367 (2013)
http://dx.doi.org/10.1021/jp406668w

23. Self-Assembly of Guanidinium-Substituted 1,4,5,8-Naphthalenediimides with Pyrophosphate and Adenosine Phosphates, Erendra Manandhar, Mingyang Ji, **Mahesh B Dawadi,** Rashid Altimimi, Jonathan R Parquette, David A. Modarelli (**Submitted for publication)**

24. *Self-assembly and spectroscopy of Trialkoxyaryl-substituted N-confused Porphyrins* Rajendra Acharya, **Mahesh B. Dawadi**, Erendra Manandhar, Mingyang Ji, Jon R. Parquette and David A. Modarelli, (**Submitted for publication**)

25. *Synchrotron based Fourier-transform far-infrared spectroscopy of the CN-band of* CH_3NO_2, Sylvestre Twagirayezu, **Mahesh B. Dawadi**, David S. Perry, Brant E. Billinghurst, and Tim May (Manuscript under preparation)

THESIS/DISSERTATION

1. **Mahesh B. Dawadi,** *Spectroscopy and dynamics of small molecules with large amplitude motion*. Electronic Thesis or *Dissertation*. The University of Akron, 2014. http://rave.ohiolink.edu/etdc/view?acc_num=akron1404824783

XI. CONFERENCE PRESENTATIONS

BLACK HAWK COLLEGE, MOLINE, IL

1. Emmanuel Rosas and **Mahesh B. Dawadi**: "*Photocatalytic degradation of industrial wastewater and antibacterial acitivity," International* Symposium on Molecular Spectroscopy, University of Illinois, Champaign-Urbana, Illinois, June 2023

Earlham College, Richmond, IN

2. Garris Radloff, Grant Bowersock, Feven M. Naba, Dorothy B. Ocran- Sarsah,Makenzie E. Bennett, Kathryn M. Sterzinger, Abigail T. Armstrong, D. Layne, and **Mahesh B. Dawadi**: "*Fabrication and characterization of highly efficient dye-sensitized solar cells with composited dyes" **E-poster**, International Conference on Solar Power Technology, Portugal, July 2021*.
3. Garris Radloff, Grant Bowersock, Feven M. Naba, Dorothy B. Ocran-Sarsah,Makenzie E. Bennett, Kathryn M. Sterzinger, Abigail T. Armstrong, and **Mahesh B. Dawadi**: "*Fabrication and characterization of highly efficient dye-sensitized solar cells with composited dyes"*International Symposium on Molecular Spectroscopy, University of Illinois, Champaign-Urbana, Illinois, June 2021.
4. Grant Bowersock, Tiffany-Jane L. Potraffke, Austin W. Smith, Tarig A. Eldosougi, Jacob H. Cope, Michael M. Cho, and **Mahesh B. Dawadi,** *"Absorption, emission spectroscopy and photo-sensitizing properties of extracted natural dyes"* Butler Undergraduate Research Conferences, April 17-2020

5. Grant Bowersock, Tiffany-Jane L. Potraffke, Austin W. Smith, Tarig A. Eldosougi, Jacob H. Cope, Michael M. Cho, and **Mahesh B. Dawadi,** "*Photo-physical properties of dye-sensitized solar cells of natural pigments"*" Butler Undergraduate Research Conferences, April 17-2020

6. Tiffany-Jane L. Potraffke, Grant Bowersock, Austin W. Smith, Tarig A. Eldosougi, Jacob H. Cope, Michael M. Cho, and **Mahesh B. Dawadi,** *" Spectroscopy and photosensitizing properties of fruit and vegetable extracted natural dyes",* International Symposium on Molecular Spectroscopy, University of Illinois, Champaign-Urbana, Illinois, June 22-28, 2020

7. Michael M. Cho, Tiffany-Jane L. Potraffke, Grant Bowersock, Austin W. Smith, Tarig A. Eldosougi, Jacob H. Cope, and **Mahesh B. Dawadi, "** *photo-physical characterization of self-assembled perylene tetracarboxylic diimide with appended diamine-naphthalene-1,5- or 2,6 diylbis(oxy) bis (ethane-2,1 -diyl)) diphosponic acid"*, International Symposium on Molecular Spectroscopy, University of Illinois, Champaign-Urbana, Illinois, June 22-26, 2020.

The University of Akron, Akron, Ohio

8. **Mahesh B Dawadi**, Sylvestre Twagirayezu, C. Michael Lindsay, David S. Perry, and Li-Hong Xu, "Novel patterns of torsion-inversion tunneling and torsion-rotation coupling in the v_{11} CH-stretch region of methylamine", International Symposium on Molecular Spectroscopy, OSU, Columbus, June, 2011.

9. **Mahesh B Dawadi**, and David S. Perry, "Two model Hamiltonians for torsion-inversion tunneling in the CH-stretch vibrationally excited states of methylamine", International Symposium on Molecular Spectroscopy, OSU, Columbus, June, 2012.

10. **Mahesh B. Dawadi**, C. Michael Lindsay, David S. Perry, and Li-Hong Xu**,** "CH-stretch-torison-wagging interactions in vibrationally excited states of methylamine" Gordon research conference, vibrational spectroscopy, University of New England in Biddeford ME, August5-8, 2012.

11. **Mahesh B. Dawadi,** Ram S. Bhatta and David S. Perry, "Torsion-inversion tunneling patterns in the CH-stretch vibrationally excited states of the G_{12} molecules". International Symposium on Molecular Spectroscopy, OSU, Columbus, June, 2013.

12. Sylvestre Twagirayezu, **Mahesh B. Dawadi,** David S. Perry, Brant E. Billinghurst, and Tim May**,** "Synchrotron based Fourier-Tranform far-infrared spectroscopy of CH_3N0_2". International Symposium on Molecular Spectroscopy, OSU, Columbus, June, 2013.

13. David S. Perry, **Mahesh B. Dawadi**, Ram S Bhatta and Sylvestre Twagirayezu**, "**Coupling of Large-Amplitude and Small Amplitude Vibrations in G_{12} Molecules". The Twenty Third Colloquium on High Resolution Molecular Spectroscopy. HRMS August 25-30, 2013 Budapest-Hungary

14. **Mahesh B. Dawadi** and David S. Perry**,** "Conical Intersections between Vibrationally Adiabatic Surfaces in Methanol" Pacific Conference on Spectroscopy and Dynamics, Asilomar Cenference Center,Pacific Grove, CA, on Jan 30-Feb 2, 2014.

15. **Mahesh B. Dawadi,** Sylvestre Twagirayezu, David S. Perry, and Brant E. Billinghurst, "Assigment and Analysis of the NO_2 in-Plane Rock Band of Nitromethane Recorded by High-Resolution FTIR Synchrotron Spectroscopy" International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, June 16-20, 2014.

16. Sylvestre Twagirayezu, **Mahesh B. Dawadi,** David S. Perry, and Brant E. Billinghurst,

and Tim May, " Spectral Assigment and Analysis of the Ground State of Nitromethane in High-Resolution FTIR Synchrotron Spectra" International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, June 16-20, 2014.

17. **Mahesh B. Dawadi** and David S. Perry**,** "Conical Intersections between Vibrationally Adiabatic Surfaces in Methanol" International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, June 16-20, 2014.

18. **Mahesh B. Dawadi**, Bishnu Prasad Thapaliya, Ram S. Bhatta, and David S. Perry, " Vibrational Conical Intersections: Implications for Ultrafast Vibrational Dynamics" Aps March meeting, 2015.

19. Jojo Joseph, Zhili Yao, **Mahesh B. Dawadi**, Jon R. Parquette and David A. Modarelli, "Self-Assembly and Photophysics of Naphthalene Diimide-Based Bolaamphiphile Nanofibers". Gordon research conference photochemistry, Stohehill College, Easton, MA, July 19-24, 2015.

20. Abed Hasheminasab, Lei Wang, **Mahesh B. Dawadi**, Richard S. Herrick, Jeffrey J. Rack, Christopher J. Ziegler "*Induction of E/Z isomerization as a pendant moiety of Re(CO)3 diimide complexes."* 250th ACS National Meeting and Exposition, Boston, MA, August 16-20, 2015.

21. Li-Hong Xu, Ronald M. Less, Elias M. Reid, Bishnu P. Thapaliya, **Mahesh B. Dawadi**, David S. Perry, Sylvestre Twagireyazu and Brant E. Billinghurst. "FTIR Synchrotron Spectroscopy of the Asymmetric C-H Stretching Bands of Methyl Mercaptan (CH_3SH) – A Perplexity of Perturbations", Cap Congress, University of Ottawa, Canada, June 12-17, 2016.

22. Li-Hong Xu, Ronald M. Less, Elias M. Reid, Bishnu P. Thapaliya, **Mahesh B. Dawadi**, David S. Perry, Sylvestre Twagireyazu and Brant E. Billinghurst. "FTIR Synchrotron Spectroscopy of the Asymmetric C-H Stretching Bands of Methyl Mercaptan (CH_3SH) – A Perplexity of Perturbations", International Symposium on Molecular Spectroscopy, University of Illinois, Champaign-Urbana, Illinois, June 20-24, 2016.

23. David S. Perry, Bishnu P. Thapaliya, **Mahesh B. Dawadi,** and Ram S. Bhatta, "Vibrational Conical Intersections in CH_3SH: Implications for Spectroscopy and Dynamics in the C-H Stretch Region". International Symposium on Molecular Spectroscopy, University of Illinois, Champaign-Urbana, Illinois, June 20-24, 2016.

24. Mahesh B. Dawadi, Lou Degliumberto, David S. Perry, Howard D. Mettee and Robert L. Sams, " Analysis of the v6 asymmetric NO stretch band of nitromethane", International Symposium on Molecular Spectroscopy, University of Illinois, Champaign-Urbana, Illinois, June 19-23, 2017

25. David S. Perry, Bishnu P. Thapaliya, **Mahesh B. Dawadi**, " The Jahn-Teller effect as a treatment of molecular anharmonicity", International Symposium on Molecular Spectroscopy, University of Illinois, Champaign-Urbana, Illinois, June 18-22, 2018

INVITED TALKS

1. **Mahesh B. Dawadi**: "*Dye-sensitized solar cells for efficient power generation and their potential application to consumer electronics,"* ACS local section Illinois-

Iowa, March Meeting **2023.**

https://ourcommunitynow.com/news-local/instructor-to-lecture-about-solar-cell-research

2. **David S. Perry**, Mahesh Dawadi**,** Jonathan Martens, Badr Amyay and Michel Herman**,** "Effect of large-amplitude motion and increasing energy: New kinds of molecular vibrations and changing intermolecular dynamics in acetylene, methanol and methylame", XVII symposium on high resolution molecular spectroscopy, July2-5, 2012, Zelenogorsk, Russia.

3. **Mahesh B. Dawadi**, David S. Perry, Sylvestre Twagirayezu and Brant E. Billinghurst**,**"High-Resolution Infrared Spectra of Different Bands and Torsion-Rotation-Vibration Coupling in the Asymmetric NO Stretch of Nitromethane". Symposium on Chemical Physics-University of Waterloo, November 1-3, 2013, Canada.

4. **David S. Perry**, Bishnu Thapaliya and Mahesh B. Dawadi**, "**Vibrational conical intersections: Implications for geometric phase and ultrafast dynamics." AMOC 2015 Anharmonicity in medium-sized molecules and clusters. Madrid, Spain April 26-30, 2015.

5. Bishnu P. Thapaliya, Mahesh B. Dawadi, Ram S. Bhatta, and David S. Perry, "An Extended E⊗e Jahn-Teller Hamiltonian for Large- Amplitude Montion: Application to Vibrational Conical Intersections in CH_3SH". Symposium Honoring Jon Hougen, Gaithersberg MD, June 27-28, 2016.

6. **Mahesh B. Dawadi** " Photophysics properties of N-confused Porphyrins and Nanotube-Plolymer Hybrids." Wadsworth Center, New York State Department of Health, April 10, 2017.

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