CURRICULUM VITAE

JAMES WEIFU LEE

Date: July 15, 2025

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Lee Lab Group Website: Welcome! | Lee Research Lab
Google Scholar Website: https://scholar.google.com/citations?hl=en&user=IC6IOeoAAAAJ
https://orcid.org/0000-0003-2525-5870

EDUCATION

May 1993 **Cornell University**, Ithaca, New York, USA
Ph.D. in Biophysical Chemistry: Excitation Transfer Dynamics
Minor: Biochemistry

May 1988 **Cornell University**, Ithaca, New York, USA
M.S. in Plant Physiology and Biochemistry

PROFESSIONAL EXPERIENCE

2021/5–Present **Full Professor**, Department of Chemistry and Biochemistry, Old Dominion University, Norfolk, Virginia

2010/12–2021/4 **Associate Professor**, Department of Chemistry and Biochemistry, Old Dominion University, Norfolk, Virginia

2010/12–2017/6 **Assistant Director of the Virginia Coastal Energy Research Consortium**, Old Dominion University, Norfolk, Virginia

2008/7–2015/6 **Adjunct Professor**, Renewable BioEnergy/Environment and Photovoltaic Solar-Greenhouse Distillation Systems, Whiting School of Engineering, Johns Hopkins University, Baltimore, Maryland

2008/2–2009/8 **Vice President of Research**, Synthetic Biology, Algenol Biofuels Inc, Baltimore, Maryland

2006/1–2008/1 **Senior R&D Staff Scientist** (Payscale Group RP04CM00, Ladder/Band: RP04; equivalent to GS-15), Chemical Sciences Division, U.S. DOE Oak Ridge National Laboratory, Oak Ridge, Tennessee

2001/6–2005/12	**R&D Staff Scientist** (Payscale Group RP03CM00, Ladder/Band: RP03; equivalent to GS-13), Chemical Sciences Division, U.S. DOE Oak Ridge National Laboratory, Oak Ridge, Tennessee
2000/7–2001/5	**Development Staff Member II Scientist** (Payscale Group 11; a rank similar to GS-12), Chemical Technology Division, U.S. DOE Oak Ridge National Laboratory, Oak Ridge, Tennessee
1998/10–2000/6	**Development Staff Member I Scientist** (Payscale Group/Rate Rang, Level 9, equivalent to GS-11), Chemical Technology Division, U.S. DOE Oak Ridge National Laboratory, Oak Ridge, Tennessee
1994/10–1998/9	**Development Staff Member I Scientist** (GS-09 equivalent to Assistant Professor Level), Chemical Technology Division, U.S. DOE Oak Ridge National Laboratory, Oak Ridge, Tennessee
1992/10–1994/9	**Postdoctoral Research Associate**, Chemical Technology Division, U.S. DOE Oak Ridge National Laboratory, Oak Ridge, Tennessee

TEACHING EXPERIENCE

Old Dominion University

Courses Taught (Fall 2011-present):

CHEM 441/541 Biochemistry Lecture (Spring 2012, Summer 2012, Fall 2012)
CHEM 441/541 Biochemistry Lecture (Spring 2013, Summer 2013)
CHEM 441/541 Biochemistry Lecture (Spring 2014, Summer 2014)
CHEM 441/541 Biochemistry Lecture (Spring 2015, Summer 2015)
CHEM 485 Chemistry and Biochemistry Seminar (Fall 2011, Fall 2015)
CHEM 795 Advanced Biofuels and Bioproducts (Fall 2011, Fall 2013, Fall 2014, Fall 2015)
CHEM 898 Doctoral Research (Fall 2011-Fall 2016)
CHEM 816 Biomedical Rotations (Spring 2014)
CHEM 698 Master's Research (Fall 2013-present)
CHEM 497 Independent Study (Spring 2014, Summer 2014, Spring 2015)
CHEM 498 Independent Study (Spring 2013, Fall 2013, Spring 2014, Summer 2015)
CHEM 498 Independent Study (Fall 2014, Spring 2015, Summer 2015, Fall 2015)
CHEM 899 Dissertation (Summer 2015, Fall 2015)
CHEM 441/541 Biochemistry Lecture (Spring 2016, Summer 2016)
CHEM 105N Introductory Chemistry Lecture (a large class of 350 students, Fall 2016)
CHEM 107N Intro Organic and Biochemistry Lecture 22658 (Spring 2017)
CHEM 108N Intro Organic & Biochem Lab 22659 (Spring 2017)
CHEM 108N Intro Organic & Biochem Lab 22660 (Spring 2017)
CHEM 898 Doctoral Research 20793 and 23770 (Spring 2017)
CHEM 899 Dissertation 29058 (Spring 2017)
CHEM 498 Independent Study 23985 (Spring 2017)
CHEM 441/541 Biochemistry Lecture 32273 and 32275 (Summer 2017)
CHEM 898 Doctoral Research 32315 (Summer 2017)
CHEM 898 Dissertation 33498 (Summer 2017)
CHEM 498 Independent Study 12526 (Fall 2017)
CHEM 765 Advanced Biochemistry (Part of it: Membranes and Bioenergetics, Fall 2017)

CHEM 790 Master's Seminar 14493 (Fall 2017)
CHEM 890 Chemistry Seminar 12025 (Fall 2017)
CHEM 891 Doctoral Seminar 12026 (Fall 2017)
CHEM 898 Doctoral Research 20995, 21137, and 21839 (Fall 2017)
CHEM 899 Dissertation 13775 (Fall 2017)
CHEM 107N Intro Organic and Biochemistry Lecture 22331 (Spring 2018)
CHEM 108N Intro Organic & Biochem Lab 22332 (Spring 2018)
CHEM 108N Intro Organic & Biochem Lab 22333 (Spring 2018)
CHEM 498 Independent Study 23516 (Spring 2018)
CHEM 898 Doctoral Research 20810 and 23307 (Spring 2018)
CHEM 899 Doctoral Dissertation 27521 (Spring 2018)
CHEM 498 Independent Study 30609 (Summer 2018)
CHEM 898 Doctoral Research Section 30637 (Summer 2018)
CHEM 498 INDEPENDENT STUDY Section 12372 (Fall 2018)
CHEM 441/541 BIOCHEMISTRY LECTURE, Section 10103 (Fall 2018)
CHEM 899 DISSERTATION, Section 13431 (Fall 2018)
CHEM 898 DOCTORAL RESEARCH, Section 19176 (Fall 2018)
CHEM 898 DOCTORAL RESEARCH, Section 19287 (Fall 2018)
CHEM 441/541 BIOCHEMISTRY LECTURE, Section 21706 (Spring 2019)
CHEM 765/865 Advanced Biochemistry Lee co-taught with Lesley Greene (Spring 2019)
CHEM 498 INDEPENDENT STUDY, Section 23254 (Spring 2019)
CHEM 898 DOCTORAL RESEARCH, Section 20727 (Spring 2019)
CHEM 898 DOCTORAL RESEARCH, Section 23054 (Spring 2019)
CHEM 899 DISSERTATION, Section 26753 (Spring 2019)
CHEM 441/541 BIOCHEMISTRY LECTURE section 30524 (Summer 2019)
CHEM 498 Independent Study, CRN:30538 (Summer 2019)
CHEM 898 DOCTORAL RESEARCH, CRN: 36609 (Summer 2019)
CHEM 899 DISSERTATION, Section 31518 (Summer 2019)
CHEM 441/541 BIOCHEMISTRY LECTURE CRN: 10084 (Fall 2019)
CHEM 498 Independent Study, CRN:12217 (Fall 2019)
CHEM 898 DOCTORAL RESEARCH, CRN:18150 (Fall 2019)
CHEM 899 DISSERTATION, CRN:13153 (Fall 2019)
CHEM 441 Biochemistry Lecture CRN:21633 (Spring 2020)
CHEM 498 Independent Study CRN:23038 (Spring 2020)
CHEM 765/865 Advanced Biochemistry CRN:29493/29494 (Spring 2020)
CHEM 898 Doctoral Research CRN:20704/22618 (Spring 2020)
CHEM 899 Dissertation CRN:26293 (Spring 2020)
CHEM 698 Master's Research CRN: 37822 (Summer 2020)
CHEM 898 Doctoral Research CRN: 30523 (Summer 2020)
CHEM 899 Dissertation CRN:31437 (Summer 2020)
CHEM 105N Introductory Chemistry CRN: 23390 (Fall 2020)
CHEM 173T Nutritional Biochemistry CRN:16268 (Fall 2020)
CHEM 498 Independent Study CRN: 12076 (Fall 2020)
CHEM 898 Doctoral Research CRN: 17338 (Fall 2020)
CHEM 899 Dissertation CRN: 22788 (Fall 2020)
CHEM 899 Dissertation CRN: 25779 (2021)
CHEM 898 Doctoral Research CRN: 20672 (2021)
CHEM 175T Neurotechnology CRN: 27904 27905, 27906 (2021)

CHEM 441 Biochemistry Lecture CRN: 21555, 32763 (2021)
CHEM 541 Biochemistry Lecture CRN: 21933, 32766 (2021)
CHEM 898 Doctoral Research CRN: 20672 (2021)
CHEM 899 Dissertation CRN: 25779 (2021)
CHEM 498 Independent Study CRN: 22835 (Spring 2021)
CHEM 173T Nutritional Biochemistry CRN: 35346, 35347 (2021)
CHEM 898 Doctoral Research CRN: 30478 (2021)
CHEM 899 Dissertation CRN: 31322 (2021)
CHEM 173T Nutritional Biochemistry CRN: 26732, 33710 (Spring 2022)
CHEM 865 Advanced Biochemistry CRN: 33333 (Spring 2022)
CHEM 173T Nutritional Biochemistry CRN:15443 (Fall 2022-2023)
CHEM 175T Neurotechnology CRN:16963,16964 (Fall 2022-2023)
CHEM 173T Nutritional Biochemistry CRN:32580 (Spring 2023)
CHEM 175T Neurotechnology CRN: 27029, 27030 (Spring 2023)
CHEM 498 Independent Study CRN: 22561 (Spring 2023)
CHEM 105N Introductory Chemistry Lecture CRN:22712 (148 students, Fall 2023)
CHEM 173T Nutritional Biochemistry CRN:15017 (Fall 2023)
CHEM 173T Nutritional Biochemistry (Spring 2024)
CHEM 173T Nutritional Biochemistry (Fall 2024)
CHEM 441/541 Biochemistry Lecture (Spring 2025)

STUDENT MENTORING

Served as PhD Committee Member or Advisor for over 50 graduate students, a postdoctoral research associate, and about 80 undergraduate student researchers (research participants) at Old Dominion University, Norfolk, Virginia, 12/2010–Present;

Total 50 graduate students (12 with Lee as advisor plus 38 with Lee as committee member):

(1) Cameron Smith (Lee as PhD advisor, graduated in Fall 2015)
(2) Matthew Huff (Lee as PhD advisor, graduated in Fall 2018)
(3) Haitham Saeed (Lee as PhD advisor, graduated in Fall 2016)
(4) Henok Andemichael (Lee as PhD advisor, graduated with MS in Summer 2015)
(5) Thu Nguyen (Lee as PhD advisor, graduated in Fall 2021)
(6) Amanda Wheeler (Lee as MS advisor, graduated in Spring 2015)
(7) Kevin Crowley (Lee as MS advisor)
(8) Oumar Sacko (Lee as PhD advisor, graduated in Summer 2021)
(9) Gyanendra Kharel (Lee as PhD advisor)
(10) Andriana C. Zourou on BS/MS dual track (Lee as advisor on USDA biosafety research, graduated in Summer 2021)
(11) Simirjeet K. Singh (Lee as MS research advisor on USDA biosafety research)
(12) Bayan Alharbi (Lee as PhD advisor since Summer 2021)
(13) Curtis Wood (Lee as PhD advisor since Summer 2021)

(14) Rajaa Mesfioui (Lee as PhD committee member, graduated in 2014)
(15) Albert Kamga (Lee as PhD committee member, graduated in 2016)
(16) Sarah Gurganus (Lee as MS committee member, graduated in 2013)
(17) Blaine Hartman (Lee as PhD committee member, graduated in 2015)
(18) Wassim Obeid (Lee as PhD committee member, graduated in 2015)
(19) Derek Waggoner (Lee as PhD committee member, graduated in 2017)

(20) Hongmei Chen (Lee as PhD committee member, graduated in 2014)
(21) Jose Luis Garcia Moscoso (Lee as PhD committee member, graduated in 2014)
(22) Sergiy Popov (Lee as PhD committee member, graduated with PhD in 2015)
(23) Sarah Marshall (Lee as PhD committee member)
(24) Hari Mangunuru (Lee as PhD committee member, graduated in 2014)
(25) Martha S. Johnson (Lee as PhD committee member, graduated in 2019)
(26) Meghan S. Warden (Lee as PhD committee member, graduated in 2018)
(27) Dong Liu (Lee as MS committee member, graduated with MS in 2014)
(28) Kristen Bashaw (Lee as PhD committee member, graduated in 2019)
(29) Seyyedhadi Khatami (Lee as PhD committee member, graduated in Spring 2020)
(30) Raj K. Gurung (Lee as PhD committee member)
(31) Dong Liu (Lee as PhD committee member since 2015)
(32) Cherrelle Barnes (Lee as PhD committee member since 2016)
(33) Kameron Adams (Lee as PhD committee member since 2017)
(34) Adenrele Oludiran (Lee as MS committee member 2017)
(35) Asia Poudel (Lee as PhD committee member since 2017)
(36) Astha Pokhrel (Lee as PhD committee member since 2017)
(37) Joedian Y. Morris (Lee as PhD committee member 2017-2020 summer)
(38) Surya B. Adhikari (Lee as PhD committee member since 2017)
(39) Tatiana Zvonareva (Lee as PhD committee member since 2017)
(40) Krishna K Raut (Lee as PhD committee member since 2017)
(41) Andy Bessette (Lee as PhD committee member since 2017, graduated with PhD in 2018)
(42) Alexander Asiedu (Lee as PhD committee member since 2018, Environmental Engineering)
(43) Alex Goranov (Lee as PhD committee member since 2017)
(44) Rebecca M. Richardson (Lee as PhD committee member since 2017)
(45) Pushpita Kumkum (Lee as PhD committee member since 2019, Environmental Engineering)
(46) George Daramola (Lee as MS committee member since 2019, Environmental Engineering)
(47) Mason Martin (Lee as MS committee member in 2019, Environmental Engineering)
(48) Sagar Pokharel (Lee as MS committee member in 2019, Environmental Engineering)
(49) Ashani Samaratunga (Lee as PhD committee member in 2020, Environmental Engineering)
(50) Anuj Thakkar (Lee as PhD committee member in 2020, Environmental Engineering)
(51) Duaa Alajroush (Lee as PhD committee member since 2021)
(52) Hannah M. Hamontree (Lee as PhD committee member since 2021)
(53) Kyoko Hirayama (Lee as MS committee member since 2022, Environmental Engineering)
(54) João Vitor dos Santos (Lee as PhD committee member since 2023)
(55) Ujjwal Pokharel (Lee as MS committee member 2023,Environmental Engineering)
(56) Isamu Umeda (Lee as PhD committee member since 2024, Environmental Engineering)

Advised a Postdoctoral Research Associate (Dr. Maite Buxens Azcoaga) on synthetic biology for photobiological biofuel research in Lee Lab (June 2012 – June 2013).

Advised Senior Thesis Research Students (total 7):
(1) Ashley Pullin on biochar research in Lee Lab (August 2016 – Spring 2017)
(2) Sean Catley on biochar research in Lee Lab (August 2015 – Spring 2016)
(3) Cedric G. Nelson on biofuel research in Lee Lab (August 2015 – December 2015)

(4) Devki Gajera on biochar research in Lee Lab (August 2013 – Spring 2014)
(5) Richard Jones on biochemistry research in Lee Lab (August 2012 – Spring 2013)
(6) Andriana C. Zourou on biochemistry research in Lee Lab (August 2019 – May 2020)
(7) Curtis Wood on biochar chemistry research in Lee Lab (August 2020 – May 2021)

Advised Undergraduate Students Researchers (cumulatively about 79, plus 7 Senior Thesis Research Students listed above; total = 86)

Over Thirty Undergraduate Students Researchers in the Lee Lab (Spring 2018 – present):
(8) Michael Eason on proton bioenergetics research (Chem 498)
(9) Sana Sherazi on USDA project biochemistry research (Chem 498)
(10) Adwoa Sika on biochar biochemistry research (Chem 498)
(11) Jason Agola on USDA project biochemistry research (Chem 498)
(12) Bryan Koury on USDA project transgenic cyanobacteria research (Chem 498)
(13) McKenzie A. Loos on biochar chemistry (Chem 498) and USDA project biochemistry
(14) Laura Sweet on biochar chemistry research
(15) Payam Davari on biochar chemistry research
(16) Scarlet Aguilar on biochar sand-soilization chemistry research
(17) Kaitie Hunter on biochar and USDA project biochemistry research (Chem 498)
(18) Katriena Nietch on proton bioenergetics research (Chem 498)
(19) Jorge Morales on biochar chemistry research (NSF CHE-1659476 REU Summer 2018)
(20) James Dawe on biochar/phosphate chemistry research (NSF-1560194 REU Summer 2018)
(21) Ryan Gunter on biochar/phosphate chemistry research (NSF-1560194 REU Summer 2018)
(22) Briana F Mclaren on USDA project biochemistry research
(23) Tooba Aziz on USDA project biochemistry research (Spring 2019 Chem 498)
(24) Andriana C. Zourou on USDA project biochemistry research (Summer 2019 Chem 498)
(25) Martin Bava on biochar biochemistry research (2019-2020 Chem 498)
(26) Stephanie Radtke on USDA project biochemistry research (Fall 2019 Chem 498)
(27) Rhiannon Gagin on biochar biochemistry research (2019-2020 Chem 498)
(28) Isaac Mukooza on biochar chemistry research (NSF-1560194 REU Summer 2019)
(29) Johana Fernandez-Solano on biochar research (NSF CHE-1659476 REU Summer 2019)
(30) Marjorye A. Correa Castro on biochar biochemistry research (2019-2020 Chem 498)
(31) Curtis Wood on biochar chemistry research (Spring, Summer/Fall 2020 Chem 498)
(32) Tamir Abbasi on proton molecular dynamics simulations (Spring 2020 Chem 498)
(33) Melissa Reid on biochar chemistry research (Summer/Fall 2020 -2022 Chem 498)
(34) Jubilee Benedict on biochar chemistry research (Spring 2021 Chem 498)
(35) Humza Saeed on protonic bioenergetics research (Spring 2021 Chem 498)
(36) Jared Cochran on computational protonic bioenergetics research (Since 2021, Chem 197)
(37) Sarah Ho on protonic bioenergetics research (2022 Chem 197)
(38) Emerson Lewis on biochar research (Fall 2022 Chem 197)
(39) Amber Bennett on protonic bioenergetics research (since Fall 2022 Chem 197)
(40) Abreionah Brown on biochar research (since Fall 2022 Chem 197; 2023 Chem 498)
(41) Zachary Smith on biochemistry (Fall 2023 Chem 197; 2024 Chem 497)
(42) Lauren Johnson (REU, chemistry and biochemistry 2024 summer)
(43) Theresa Apker (RET, cyanobacteria biochemistry 2024 summer)
(44) Jacole R. Hendrick (RET, neural cell culturing 2024 summer)

Nine Undergraduate Students Researchers in the Lee Lab (2017):

(45) Christopher Russo on bioenergetics research (Chem 498: Undergraduate Student Research)
(46) Andrew Evans on proton bioenergetics research (Chem 498)
(47) Sara Abate on biochemistry research (Chem 498)
(48) Sana Sherazi on biochemistry research (Chem 498)
(49) Sara Azher on biochemistry research (Chem 498)
(50) Adwoa Sika on biochemistry research (Chem 498)
(51) Jason Agola on biochemistry research (Chem 498)
(52) Joshua Kirkpatrick on biochar chemistry research
(53) Rachel Whiteman on biochar-phosphate research (NSF-1560194 REU Summer 2017)

Eight Undergraduate Students Researchers in the Lee Lab (2016):
(54) Ashley Alvaro on biochemistry research (Chem 498)
(55) Dewayne Arrington on biochar research (Chem 498)
(56) Kevin Blowe on biochar research (Chem 498)
(57) Heather Wise on biochar research
(58) Joshua Thomas on biochar-phosphate research
(59) Jake Zelie on colorimetric alcohol assay (Chem 498)
(60) Gabby Adams on biochar chemistry research (Chem 125)
(61) Griffin Brown on biochar chemistry research (Chem 125)

Seven Undergraduate Students Researchers in the Lee Lab (2015):
(62) Kevin F. Kanda on biochemistry research (Chem 498)
(63) Yasaman Mossadad on biochemistry research (Chem 498)
(64) Ashley Pullin on biochar research (Chem 498)
(65) Kellie M. Wells on biochar research (Chem 498)
(66) Andrea L. Roehrs on biochar research (Chem 498)
(67) William Downey on biochar research (Chem 498)
(68) Jose A. Gonzalez Rosado on biochar research (Chem 498)

Eight Undergraduate Students Researchers in the Lee Lab (2014):
(69) Kahtan N. Fadah on biochar research (Chem 498)
(70) Cedric G. Nelson on biofuel research (Chem 498 and ODU Honors College 497)
(71) William Downey on biochar research (Chem 498)
(72) Michael S. Call on biochar research (Chem 498)
(73) David Amarasinghe on biochar research
(74) Olga Y. Kuzmina on biofuel research
(75) Justin Westerfield on biofuel research
(76) Megan E. Barnes on biochar research (Chem 138)

Ten Undergraduate Students Researchers in the Lee Lab in 2013:
(77) Kahi Hylton on proton bioenergetics research (Chem 498)
(78) Kahtan N. Fadah on biochar research (Chem 498)
(79) Cedric G. Nelson on biofuel research (Chem 138)
(80) William Downey on biochar research (Chem 138)
(81) Kevin Blowe on biochar research (Chem 138)
(82) Nathan P. Berkebile on biochar research
(83) David Amarasinghe on biochar research
(84) Olga Y. Kuzmina on biofuel research

(85) Michael S. Call on biochar research
(86) Justin Westerfield on biofuel research

Hosted High School Student Researchers in the Lee Lab

• Hosted a Deep Creek High School student, Emerald Greene participating on biochar research in Lee Lab (2014).

• Hosted two high school science students from the underrepresented regions nearby ODU to visit and participate in our laboratory studies with ODU's SEECR Biofuels Research Apprenticeship Program of High School Students (Summer 2013).

• Hosted a high-school student (Chris Cooper) on biochar chemistry research in Lee Lab (2012 Summer).

• Hosted a graduate student (Eric Buzan) and a high-school student for a summer research project on biochar chemistry in Lee Lab (2011 Summer).

Johns Hopkins University

Adjunct Professor, Johns Hopkins University, Whiting School of Engineering, Baltimore, Maryland, 2008/7—2015/6

• Served on a PhD Graduate Program Committee for PhD Graduate Student Pavlo Bohutskyi.

Oak Ridge National Laboratory (ORNL)/University of Tennessee, Knoxville (UTK)

Adjunct Professor, Department of Chemical & Biomolecular Engineering, The University of Tennessee, Knoxville 1999–2008

• Supervised UTK/ORNL postdoctoral research associates;
• Supervised 10 UTK students and 12 DOE Energy Research students;
• Collaborated with UTK professors in research program development.

Advisor for graduate student (Brent George) from Tennessee Technical University for his Master Thesis research at ORNL 2003-2004.

Adjunct Teaching Professor, U.S. DOE Oak Ridge Science Semesters Program 2002

• Instructed and taught a full 4-credit biochemistry course at ORNL for a class of senior undergraduate students who came from a number of universities and colleges across the nation to ORNL for science education and training under the U.S. DOE science education program.

PUBLICATIONS: Books, Journal Articles, Book Chapters, Scientific Monographs, and Other Published Works (Google Scholar **h-index** 37, **i10-index** 82, **Citations** = 6593) – undergraduate and graduate students are designated by (§) and (†), respectively

Published Books

1. Lee JW (2013), Editor, ***Advanced Biofuels and Bioproducts***, a special Springer book series (1122 pages), Volumes I and II. ISBN 978-1-4614-3347-7; ISBN 978-1-4614-3348-4 (eBook);

DOI 10.1007/978-1-4614-3348-4; Library of Congress Control Number: 2012939845. Springer, New York, Heidelberg, Dordrecht, London (This book was "one of the top 25% most downloaded eBooks in the relevant Springer eBook Collection in 2019" with a total of 227,857 chapter downloads for eBooks on SpringerLink).

2. Lee JW, and Foote RS (2009), Editors, ***Micro and Nano Technologies in Bioanalysis: Methods and Protocols*****,** a special book (668 pages; **ISBN-10:** 1934115401) series: *Methods in Molecular Biology,* Springer/Humana Press, Dordrecht, Heidelberg, London, and New York.

3. Davison BH, Lee JW, McMillan JD, Finkelstein M (2003) Editors of symposium book: ***Proceedings of the Twenty-Fourth Symposium on Biotechnology for Fuels and Chemicals,*** 28 April-1-May 2002 in Gatlinburg, Tennessee. [In: Appl. Biochem. Biotechnol., 2003; 105-108]. 928 pp.

Refereed Journal Articles and Book Chapters

4. Lee JW (2025) **Asymmetric Type-B Energy Technology: Isothermally Utilizing Environmental Heat Energy to Generate Electricity,** *Energies*, submitted for publication.

5. Lee JW (2025) **Calculation of proton transmembrane-electrostatic interaction force and elucidation of the water droplet experiment with a transient protonic front,** *RSC Adv.*, 2025, 15, 21108–21120; DOI: 10.1039/d5ra03298a

6. Lee JW (2025) **Application of TELC model to better elucidate neural stimulation by touch**. *Explor Neurosci.* 2025;4:100685. https://doi.org/10.37349/en.2025.100685

7. Lee, J. W. (2025) **Experimental demonstration and study of transmembrane-electrostatically localized protons prevail**, A multidisciplinary research journal *Water* 10: 35-58; doi:10.14294/WATER.2024.4

8. Lee, J. W. (2024) **Type-B Energetic Processes: Their Identification and Implications**. *Symmetry* 16, 808 (2024). https://doi.org/10.3390/sym16070808

9. Lee, J.W.; Sheehan, D.P. (2024) **Type-B Energetic Processes: Introduction and Invitation to Special Issue of Energies**. *Energies* 2024, 17(23), 6076; https://doi.org/10.3390/en17236076

10. Lee, J.W. (2024) **Application of TELC model to neurology: Review and commentary responding to Silverstein's critique.** *Current Trends in Neurology* 17, 83-89.

11. Lee JW (2023) **TELP theory: Elucidating the major observations of Rieger et al. 2021 in mitochondria,** *Mitochondrial Communications* 2023 Vol. 1 Pages 62-72; DOI: https://doi.org/10.1016/j.mitoco.2023.09.001

12. Lee JW (2023) **Protonic conductor: Explaining the transient "excess protons" experiment of Pohl's group 2012**, *Biophysical Chemistry* 296 (2023) 106983; DOI: https://doi.org/10.1016/j.bpc.2023.106983

13. Lee JWE (2023) **Transient protonic capacitor: Explaining the bacteriorhodopsin membrane experiment of Heberle et al. 1994**, *Biophysical Chemistry* 2023 Pages 107072; DOI: https://doi.org/10.1016/j.bpc.2023.107072

14. Daniel P. Sheehan, Garret Moddel, and James W. Lee, **More on the demons of thermodynamics**, *Physics Today* 76, 3, 12 (2023); https://doi.org/10.1063/PT.3.5186

15. Lee JW (2022) **Type-B energetic processes and their associated scientific implications**,

Journal of Scientific Exploration, 2022, 36 (3) 487-495; https://doi.org/10.31275/20222517

16. Lee JW (2022) **Type-B Energy Process: Asymmetric function-gated isothermal electricity production**, *Energies* 2022, 15, 7020; https://doi.org/10.3390/en15197020

17. Lee JW (2023) **Thermotrophy exploratory study**, Journal of Scientific Exploration, Vol. 37, NO. 1– SPRING 2023; https://doi.org/10.31275/20222655

18. Sacko O, Engle NL, Tschaplinski TJ, Kumar S, Lee JW (2022) **Ozonized biochar filtrate effects on the growth of *Pseudomonas putida* and cyanobacteria *Synechococcus elongatus* PCC 7942**, Springer-Nature journal: Bioresources and Bioprocessing (2022) 9:2; https://doi.org/10.1186/s40643-021-00491-2

19. Sacko O, Feng X, Morris JR, Council-Troche RM, Kumar S, Lee JW (2022) **Sustainable green chemistry: water-soluble ozonized biochar molecules to unlock phosphorus from insoluble phosphate materials**, ACS Agricultural Science & Technology 2022 2 (1), 69-78; DOI:10.1021/acsagscitech.1c00160; https://pubs.acs.org/action/showCitFormats?doi=10.1021/acsagscitech.1c00160&ref=pdf

20. Lee JW (2021) **Mitochondrial energetics with transmembrane electrostatically localized protons: Do we have a thermotrophic feature?** Nature research journal: Scientific Reports (2021) 11:14575; https://doi.org/10.1038/s41598-021-93853-x

21. Lee JW (2021) **Energy renewal: Isothermal utilization of environmental heat energy with asymmetric structures**, *Entropy*, 2021, 23(6), 665; https://doi.org/10.3390/e23060665

22. Sacko O[†], Whiteman R[§], Kharel G[†], Kumar S, Lee JW (2020) **Sustainable Chemistry: Solubilization of phosphorus from insoluble phosphate material hydroxyapatite with ozonized biochar** Journal: ACS Sustainable Chemistry & Engineering 8 (18), 7068-7077; https://dx.doi.org/10.1021/acssuschemeng.0c00601.

23. Oumar Sacko[†], Cherrelle L. Barnes[†], Lesley H. Greene and James W. Lee (2020) **Survivability of Wild-Type and Genetically Engineered *Thermosynechococcus elongatus* BP1 with Different Temperature Conditions**, *Applied Biosafety: Journal of ABSA International*, 25(2): 104-117.

24. Lee JW (2020) **Protonic Capacitor: Elucidating the biological significance of mitochondrial cristae formation**, a Nature research journal: Scientific Reports 10 (1): 1-14; Sci Rep 10, 10304 (2020); https://doi.org/10.1038/s41598-020-66203-6.

25. Lee JW (2020) **Isothermal environmental heat energy utilization by transmembrane electrostatically localized protons at the liquid−membrane interface**, ACS journal Omega 5 (28): 17385-17395; https://dx.doi.org/10.1021/acsomega.0c01768

26. Lee JW (2020) **Protonic conductor: better understanding neural resting and action potential**, The American Physiological Society's journal: Journal of Neurophysiology, 124 (4): 1029–1044, 2020; https://journals.physiology.org/doi/abs/10.1152/jn.00281.2020; https://pubmed.ncbi.nlm.nih.gov/32816602/.

27. Lee JW (2019) **Protocol measuring horizontal gene transfer from algae to non-photosynthetic organisms**, MethodsX 6:1564–1574.

28. Nguyen TH[†], Barnes CL[†], Agola JP[§], Sherazi S[§], Greene LH, and Lee JW (2019) **Demonstration of horizontal gene transfer from genetically engineered *Thermosynechococcus elongatus* BP1 to wild-type *E. coli* DH5α**, *Gene*, 704: 49-58;

https://doi.org/10.1016/j.gene.2019.03.014

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172. Lee, J. (2018) **Proton motive force computation revealing latent heat utilization by localized protons at a liquid-biomembrane interface**, pp. PHYS-211, American Chemical Society.

173. Huff, M.[†], Marshall, S.[†], Saeed, H.[†], and Lee, J. (2018) **Biochar surface oxygenation through ozonization for enhanced cation exchange capacity**, pp. ENVR-107, American Chemical Society.

174. Pullin A,[§] Sacko O,[†] Lee JW (2017). **Effect of ozonization on the potential toxicity of biochar**, Abstracts of Papers, 253rd ACS National Meeting & Exposition, San Francisco, CA, United States, April 2-6, 2017.

175. Lee JW (2017) **Elucidating the 30-year-longstanding bioenergetics mystery in alkalophilic bacteria**, Abstracts of Papers, the Biophysical Society 61th Annual Meeting, New Orleans, Louisiana, February 11-15, 2017.

176. Huff M,[†] Marshall S,[†] Saeed H,[†] Lee JW (2017) **Biochar surface oxygenation through ozonization for enhanced cation exchange capacity**, ABSTRACT SYMPOSIUM NAME: Agro-Environmental & Energy Applications of Biochar/Hydrochar (Oral), 255th ACS National Meeting & Exposition, March 18-22, 2018, New Orleans, Louisiana.

177. Nguyen T,[†] Barnes C,[†] Agola J,[§] Sherazi S,[§] Greene LH, Lee JW (2017) **Demonstration of horizontal gene transfer from genetically engineered cyanobacteria to wild-type E. coli**, ABSTRACT SYMPOSIUM NAME: Current Topics (Poster), 255th ACS National Meeting & Exposition, March 18-22, 2018, New Orleans, Louisiana.

178. Sacko O,[†] Li C,[†] Kharel G,[†] Abate S,[§] Sika A,[§] Kumar S, Lee JW (2017) **Turning un-hydrolyzed cellulosic lignin residue into surface-oxygenated biochar through**

hydrothermal carbonization and wet ozonization, ABSTRACT SYMPOSIUM NAME: Agro-Environmental & Energy Applications of Biochar/Hydrochar (Oral), 255th ACS National Meeting & Exposition, March 18-22, 2018, New Orleans, Louisiana.

179. Sacko O,† Pullin A,§ Blowe K,§ Arrington D,§ Kharel G,† Abate S,§ Sika A,§ Kumar S, Lee JW (2017) **Comparative study of wet vs. dry biochar ozonization on oxygenation of biochar surface and dissolved organic carbon**, ABSTRACT SYMPOSIUM NAME: General Posters (Poster), 255th ACS National Meeting & Exposition, March 18-22, 2018, New Orleans, Louisiana.

180. Lee JW (2017) **Proton motive force computation revealing latent heat utilization by localized protons at a liquid-biomembrane interface**, ABSTRACT SYMPOSIUM NAME: Understanding the Complexity of the Nano/Bio Interface with Experiments & Computations (Oral), 255th ACS National Meeting & Exposition, March 18-22, 2018, New Orleans, Louisiana.

181. Saeed HA† and Lee JW **(**2017) **Experimental determination of proton-cation exchange equilibrium constants fundamental to bioenergetics**, ABSTRACT SYMPOSIUM NAME: Energy & Charge Transfer at Nanoscale Interfaces, 255th ACS National Meeting & Exposition, March 18-22, 2018, New Orleans, Louisiana.

182. Lee JW (2017) **Elucidated: the 30-year-longstanding bioenergetics mystery in alkalophilic bacteria**, Abstracts of Papers, the Biophysical Society 62th Annual Meeting, San Francisco, California, February 17-21, 2018.

183. Catley S,§ Sacko O,† Huff M,† Lee JW (2016) **Biochar ozonization and characterization with biochar water filtrate assays**, Abstracts of Papers, 44th Middle Atlantic Regional Meeting of the American Chemical Society, Riverdale, NY, United States, June 9-12. 2016.

184. Saeed HA† and Lee JW **(**2016) **Experimental Demonstration of Localized Excess Protons at a Water Membrane Interface and the Effect of other Cations on Their Stability**, presented at the American Society for Biochemistry and Molecular Biology 2016 Annual Meeting, San Diego, California, April 2-6, 2016.

185. Lee JW (2015) **Designer Algae for Photoautotrophic Synthesis of Advanced Biofuels from Carbon Dioxide and Water**, Abstract of an invited talk presented at the 2015 Algal Biomass Summit, Washington, Marriott Wardman Park, Washington, DC, September 29-October 2, 2015.

186. R Jones§, M Buxens, A Wheeler†, J Westerfield§, JW Lee (2013) **Colorimetric assay for quantitative analysis of butanol and other higher alcohols**, ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY 246.

187. M Huff†, S Kumar, JW Lee (2013) **Comparative analysis of biochars produced via hydrothermal conversion and slow pyrolysis**, ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY 246.

188. CR Smith†, S Kumar, JW Lee (2013) **Potential Impact of Biochar Water-Extractable Substances on Environmental Sustainability**, ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY 246.

189. H Saeed†, JW Lee (2103) **Experimental bioenergetics study: Electrostatically localized protons**, ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY 246.

190. H Andemichael[†], JW Lee (2013) **Tolerance of *Arthrospira platensis* to biofuel alcohols**, ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY 246.

191. Lee, James W. (2005) **A possible electrostatic interpretation for proton localization and delocalization in chloroplast bioenergetics system**. Biophysical Journal 2005, 88, (1), 324a-325a.

192. Day, Danny; Lee, James W.; Reicosky, Don (2004) **Development of sustainable fertilizer with positive local and global impacts**. Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004.

RESEARCH PAPERS PRESENTED (Total 70) AT PROFESSIONAL MEETINGS – presenter in bold, invited papers marked with (*), poster marked with ($^{\Omega}$)

193. **James W. Lee*** (July 26 – 28, 2024) **Biochar surface oxygenation through ozonization and unlocking of phosphorus in soil mineral phases for environmental and agroecosystems sustainability** USDA SOIL HEALTH PROGRAM 2024 Hydrochar & Biochar Conference at South Dakota School of Mines & Technology, Rapid City, South Dakota, USA.

194. **James W. Lee** $^{\Omega}$ (July 26 – 28, 2024) **Biochar Surface Oxygenation through Ozonization and Smartly Unlocking Phosphorus in Soils for Environmental and Agricultural Sustainability** USDA SOIL HEALTH PROGRAM 2024 Hydrochar & Biochar Conference at South Dakota School of Mines & Technology, Rapid City, South Dakota, USA.

195. **James W. Lee*** (June 25--30, 2023) **Mitochondrial energetics with transmembrane-electrostatically localized protons: Do we have a type-B energetic process?** Gordon Research Conference on Bioenergetics, Proctor Academy in New Hampshire, United States.

196. **James W. Lee*** (April 20, 2023) **Better the Fundamental Understanding of Action Potential and Neural Stimulation,** American Physiology Society summit, History of Physiology Award acceptance lecture at the Convention Center, Long Beach, California, USA.

197. **James W. Lee** $^{\Omega}$ (April 20-23, 2023) **Protonic Action Potential: Better understanding neural stimulation by touch,** American Physiology Society summit, Poster Session Title: Late-breaking Central Nervous System, Neuroscience and Neurophysiology, Poster Board Number 905, PhysioHub, Long Beach Convention and Entertainment Center, California, USA

198. **James W. Lee*** (January 18-22, 2022) **Energy Renewal: Isothermal Utilization of Environmental Heat Energy with Asymmetric Functions.** SSE Special Session, Advanced Propulsion & Energy Conference sponsored by the Society for Scientific Exploration. https://www.youtube.com/watch?v=j8FynuUJmCc

199. **James W. Lee*** (November 9, 2022) **Type-B energetic processes and their associated scientific implications** presented at the 2022 MDPI Energies Webinars/Seminars Series I: Advanced Thermodynamics, Type-B Energetic Processes and Their Applications. https://www.mdpi.com/journal/energies/events/15278

200. **James W. Lee*** (April 14, 2021) **Biochar surface oxygenation through ozonization and unlocking of phosphorus in soil mineral phases for environmental and agroecosystems sustainability**, Oral presentation at the 261st American Chemical Society (Virtual) National

Meeting, PAPER ID: 3536163, Presidential Symposium - Sustainability: Advances and Applications, Division of Agricultural and Food Chemistry of the ACS.

201. **James W. Lee*** (May 11, 18 & 25, 2021) **Protonic bioenergetics: Discovery of protonic thermotrophic function in mitochondria and bacteria and the formulation of a protonic action potential equation complementary to the Goldman-Hodgkin-Katz equation in neurons**, Oral presentation at the 2021 American Society for Biochemistry and Molecular Biology (ASBMB) Virtual Event Program: Webinars/Seminars series ***Protonic Bioenergetics and Action Potential:*** *Latest Discoveries and Progresses in Mitochondria, Neurons and Other Biosystems*.

202. **Curtis Wood *§, Oumar Sacko †, James W. Lee** (2021) **Investigation into the effect of ozonization on biochar as a function of pyrolysis temperature and its applications in dye removal**, ACS Abstract ID: 3555370, Oral presentation at the 261st American Chemical Society (Virtual) National Meeting.

203. **James W. Lee Ω** (April 27-30, 2021) **Novel protonic neuron theory: Bettering the fundamental understanding of action potential and neural stimulation**, Poster presentation at the Experimental Biology 2021/American Physiological Society conference, Poster Session Title: CNS - Central Nervous System Physiology; *The FASEB Journal,* 14 May 2021 https://doi.org/10.1096/fasebj.2021.35.S1.01845

204. **James W. Lee Ω** (April 27-30, 2021) **Protonic bioenergetics in mitochondria and neurons**, Poster presentation at the Experimental Biology 2021 / American Society for Biochemistry and Molecular Biology (ASBMB) conference, Poster Session Title: 2087-ASBMB Neurobiology and Neuronal Signaling.

205. **James W. Lee Ω** (March 9-18, 2021) **Discovery with protonic bioenergetics: Isothermal environmental heat energy utilization in mitochondria**, Poster presentation at the Biophysical Society 65th Virtual Annual Meeting, Abstract Control Number 21-A-1119-BPS.

206. Gyanendra Kharel, Oumar Sacko, Xu Feng, John R. Morris, Claire Phillips, Kristin Trippe, Sandeep Kumar and **James W. Lee*** (June 30 – July 3, 2019) **Biochar Surface Oxygenation by Ozonization for Super High Cation Exchange Capacity**, oral presentation in the 2019 U.S. Biochar and Energy Conference, Colorado State University, Fort Collins, Colorado 80532 United States.

207. Oumar Sacko, Rachel Whiteman, Sandeep Kumar and **James W. Lee*** (June 30 - July 3, 2019) **Phosphorus sustainability: Solubilization of phosphorus from insoluble phosphate material hydroxyapatite with ozonized biochar**, oral presentation in the 2019 U.S. Biochar and Energy Conference, Colorado State University, Fort Collins, Colorado 80532 United States.

208. **James W. Lee*** (June 2–7, 2019) **Mitochondrial Energetics with Electrostatically Localized Protons: Do We Have a Thermotrophic Feature?** Oral and poster presentation in Gordon Research Conference on Bioenergetics, Proctor Academy in Andover, NH, United States.

209. **James W. Lee*** (March 2–6, 2019) **Physical Chemistry of Living Systems: Isothermal Utilization of Latent Heat by Electrostatically Localized Protons at Liquid-Membrane Interface**, oral presentation presented in the 63rd Biophysical Society Annual Meeting in Baltimore, Maryland.

210. **James W. Lee*** (March 31 – April 4, 2019) **Mitochondrial energetics with electrostatically localized protons: Do we have a thermotrophic feature?** Division of Physical Chemistry oral presentation presented in the ACS Spring 2019 National Meeting in Orlando, FL.

211. **James W. Lee*** (March 31 – April 4, 2019) **New discovery in energetics: Isothermal utilization of latent heat enthalpy by electrostatically localized protons at liquid-membrane interface**, Division of Energy and Fuels oral presentation presented in the ACS Spring 2019 National Meeting in Orlando, FL.

212. **James W. Lee** $^{\Omega}$ (March 31 – April 4, 2019) **New discovery in energetics: Isothermal utilization of latent heat enthalpy by electrostatically localized protons at liquid-membrane interface** (final paper number: ENFL 245), Division of Energy and Fuels SESSION: Sci-Mix poster presentation presented in the ACS Spring 2019 National Meeting in Orlando, FL.

213. **Oumar Sacko** $^{\Omega}$, Cherrelle Baines, Lesley Greene, James W. Lee (March 31 – April 4, 2019) **Survivability of genetically engineered Thermosynechococcus elongatus BP1 in different temperature conditions** (final paper number: ENVR 493**)**, Division of Environmental Chemistry poster presentation presented in the ACS Spring 2019 National Meeting in Orlando, FL.

214. **Cherrelle Baines**,$^{\Omega}$ Lesley Greene, James W. Lee (March 31 – April 4, 2019) **Assessing the stability and expression of transgenes in genetically engineered cyanobacteria for biofuel production (final paper number BIOT 291)**, Division of Environmental Chemistry poster presentation presented in the ACS Spring 2019 National Meeting in Orlando, FL.

215. **Oumar Sacko** $^{\Omega}$, Lesley Greene, James W. Lee (March 31 – April 4, 2019) **Competition study between wild type cyanobacteria *Synechococcus elongatus* PCC 7942 and plasmid transformant *Synechocystis* PCC 6803 (final paper number: BIOT 286)**, Division of Environmental Chemistry poster presentation presented in the ACS Spring 2019 National Meeting in Orlando, FL.

216. **Thu Nguyen**$^{\Omega}$, Cherrelle Barnes, Sana Sherazi, Jason Agola, Lesley Greene, James W Lee (April 6-9, 2019), **Bio-risk assessment research on genetically engineered cyanobacteria for sustainable biofuels** poster presented in the Experimental Biology Conference sponsored by American Society for Biochemistry and Molecular Biology in Orlando, FL.

217. **James W. Lee**$^{\Omega}$ (April 6-9, 2019), **New Finding in Oxidative Phosphorylation: Isothermal Utilization of Latent Heat Energy by Electrostatically Localized Protons at Liquid-Membrane Interface**, poster presented in the Experimental Biology Conference sponsored by American Society for Biochemistry and Molecular Biology in Orlando, FL.

218. **James W. Lee**$^{\Omega}$ (April 6-9, 2019), **Designer Biosynthetic Pathways for Photosynthetic Biofuels and Bioproducts: Opportunities and Challenges**, poster presented in the Experimental Biology Conference sponsored by American Society for Biochemistry and Molecular Biology in Orlando, FL.

219. **James W. Lee*** (August 20-23, 2018) **Surface Oxygenation of Biochar through Ozonization for Dramatically Enhanced Cation Exchange Capacity**, oral presentation presented in the 2018 USBI Biochar Conference in Wilmington, Delaware USA.

220. **Oumar Sacko** $^{\Omega}$, Ashley Pullin, Kevin Blowe, Dewayne Arrington, Joshua Kirkpatrick, Sandeep Kumar, and James W. Lee (August 20-23, 2018) **Optimization of biochar**

production from pine wood biomass and its enhancement for soil amendment purposes, presented in the 2018 USBI Biochar Conference in Wilmington, Delaware USA.

221. **James W. Lee** $^{\Omega}$ (March 18-22, 2018) **Proton motive force computation revealing latent heat utilization by localized protons at a liquid-biomembrane interface**, PAPER ID: PHYS 211, presented in the Sci-Mix Session, Division of Physical Chemistry, at the 255th American Chemical Society National Meeting, New Orleans, Louisiana.

222. Haitham Saeed and **James W. Lee** $^{\Omega}$ (March 18-22, 2018) **Experimental determination of proton-cation exchange equilibrium constants fundamental to bioenergetics**, PAPER ID: PHYS 204, presented in the Sci-Mix Session, Division of Physical Chemistry, at the 255th American Chemical Society National Meeting, New Orleans, Louisiana.

223. Oumar Sacko, Chen Li, Gyanendra Kharel, Sara Abate, Adwoa Sika, Sandeep Kumar, **James W. Lee*** (March 18-22, 2018) **Turning un-hydrolyzed cellulosic lignin residue into surface-oxygenated biochar through hydrothermal carbonization and wet ozonization**, PAPER ID: 2848262 (ENVR 41), a talk presented in Session: Agro-Environmental & Energy Applications of Biochar/Hydrochar, Division of Environmental Chemistry, at the 255th American Chemical Society National Meeting, New Orleans, Louisiana.

224. Matthew D. Huff, Sarah Marshall, Haitham A. Saeed, **James W. Lee*** (March 18-22, 2018) **Biochar surface oxygenation through ozonization for enhanced cation exchange capacity**, PAPER ID: 2848302 (ENVR 107), a talk presented in Session: Agro-Environmental & Energy Applications of Biochar/Hydrochar, Division of Environmental Chemistry, at the 255th American Chemical Society National Meeting, New Orleans, Louisiana.

225. Oumar Sacko, Ashley Pullin, Kevin Blowe, Dewayne Arrington, Gyanendra Kharel, Sara Abate, Adwoa Sika, Sandeep Kumar, and **James W. Lee**$^{\Omega}$ (March 18-22, 2018) **Comparative study of wet vs dry biochar ozonization on oxygenation of biochar surface and dissolved organic carbon**, PAPER ID: I&EC 110, presented in the Sci-Mix Session, Division of Industrial and Engineering Chemistry, at the 255th American Chemical Society National Meeting, New Orleans, Louisiana.

226. Oumar Sacko, Ashley Pullin, Kevin Blowe, Dewayne Arrington, Gyanendra Kharel, Sara Abate, Adwoa Sika, Sandeep Kumar, and **James W. Lee**$^{\Omega}$ (March 18-22, 2018) **Comparative study of wet vs dry biochar ozonization on oxygenation of biochar surface and dissolved organic carbon**, PAPER ID: 2864837 (I&EC 110), presented in the General Posters Session, Division of Industrial and Engineering Chemistry, at the 255th American Chemical Society National Meeting, New Orleans, Louisiana.

227. **Thu Nguyen**, $^{\Omega}$ Cherrelle L. Barnes, $^{\Omega}$ Jason Agola, Sana Sherazi, Lesley H. Greene, and James W. Lee (March 18-22, 2018) **Demonstration of horizontal gene transfer from genetically engineered cyanobacteria to wild-type *E. coli***, PAPER ID: 2864673 (BIOL 244), presented in the Current Topics Session, Division of Biological Chemistry, at the 255th American Chemical Society National Meeting, New Orleans, Louisiana.

228. **James W. Lee** $^{\Omega}$ (February 11-15, 2017) **Elucidating the 30-year-longstanding bioenergetics mystery in alkalophilic bacteria**, presented at the Biophysical Society 61th Annual Meeting, New Orleans, Louisiana.

229. **Ashley Pullin** Ω, Oumar Sacko, and James W. Lee (April 2-6, 2017) **Effect of ozonization on the potential toxicity of biochar**, presented at 253rd ACS National Meeting in San Francisco, California.

230. **Sean Catley***, Oumar Sacko, Mathew Huff and James W. Lee (June 9-12, 2016) **Biochar ozonization and characterization with biochar water filtrate assays**, presented at the 44th ACS Middle Atlantic Regional Meeting (MARM) held in Riverdale, NY.

231. **Haitham A. Saeed** Ω and James W. Lee **(**April 2-6, 2016) **Experimental Demonstration of Localized Excess Protons at a Water Membrane Interface and the Effect of other Cations on Their Stability**, presented at the American Society for Biochemistry and Molecular Biology 2016 Annual Meeting, San Diego, California.

232. **James W. Lee*** (September 29-October 2, 2015) **Designer Algae for Photoautotrophic Synthesis of Advanced Biofuels from Carbon Dioxide and Water**, presented as an invited talk at the 2015 Algal Biomass Summit, Washington, Marriott Wardman Park, Washington, DC.

233. **Andemichael, H**. Ω and Lee, J. W. (SEP 08-12, 2013) **Tolerance of *Arthrospira platensis* to biofuel alcohols**, 246th National Meeting of the American-Chemical-Society (ACS), Indianapolis, Indiana.

234. **James W. Lee*** (October 7-8, 2013) **Electrostatically Localized Protons Bioenergetics over Mitchell's classic Chemiosmotic theory**, presented as an invited talk at the International Conference and Exhibition on Biochemical & Molecular Engineering at San Antonio, Texas, USA.

235. **James W. Lee*** (February 22, 2012) **For a New Agriculture, BioEnergy, and Environmental System with Sustainability: Biochar Soil Amendment and Global Carbon Sequestration**, presented at the USDA/AFRI Stakeholder Listening Session as invited for scientific inputs in developing the FY2013 and future USDA/AFRI program budgets and solicitations, Washington, DC.

236. **James W. Lee*** (February 23, 2006) **Creation of Designer Alga for Enhanced Photosynthetic H_2 Production from Water,** presented as an invited talk at the FuelCellSouth Partners Forum, Oak Ridge, Tennessee.

237. **James W. Lee*** (June 9-11, 2005) **Nanoscience and engineering for detection and manipulation of individual molecules,** invited speaker presentation at the China Nano 2005 International Nanoscience and Technology Conference, Beijing, China.

238. **James W. Lee*** (Feb 2005) **A possible electrostatic interpretation for proton localization and delocalization in chloroplast bioenergetics system**, presented at the Biophysical Society 49th Annual Meeting, USA.

239. **James W. Lee*** (May 24 - 27, 2004) **Creation of designer alga for efficient and robust production of H_2 from water,** presented at the DOE Hydrogen, Fuel Cells & Infrastructure Technologies Program Merit Review meeting, Philadelphia, PA.

240. **James W. Lee***, Danny Day, Robert Evans, and Rongfu Li (June 10-11, 2004). **Ammonia carbonation and biomass pyrolysis for carbon management**, presented as an invited talk at the Energy with Agricultural Carbon Utilization Symposium, Athens, GA.

241. **James W. Lee***, Laurens Mets, Dong Xu, and Barbara R. Evans (May 9 - 12, 2004) **Genomic Biotechnology: Creation of Designer Alga for Enhanced H_2 Production,** presented as an

invited talk at the 26th Symposium on Biotechnology for Fuels and Chemicals, Chattanooga, Tennessee.

242. **James W. Lee***, Danny Day, Robert Evans, and Rongfu Li (May 5-8, 2003) **Ammonia carbonation and biomass pyrolysis for carbon management**, presented at the Second Annual Conference on Carbon Sequestration, Alexandria, Virginia.

243. **James W. Lee***, Laurie Mets, Dong Xu, Barbra Evans, and Jizhong Zhou (May 19-22, 2003). "**Development of efficient ad robust algal hydrogen production systems**," presented at the DOE Hydrogen, Fuel Cells & Infrastructure Technologies Program Merit Review meeting, Berkeley, California.

244. **James W. Lee*** (March 4-6, 2003). "**Overcoming nation's roadblocks to photosynthetic H_2 production**," presented at the 14th Annual U.S. Hydrogen Conference and Hydrogen Expo USA, Washington, DC.

245. **James W. Lee*** and E. Greenbaum (April 28 - May 2, 2002) **A new oxygen sensitivity in algal H_2 production,** presented at the 24th Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, Tennessee.

246. **James W. Lee*** and Rongfu Li (December 3-7, 2001) **Integration of coal-fired energy systems with CO_2 sequestration**, presented as an invited talk at the Eighteenth Annual International Pittsburgh Coal Conference, Newcastle, Australia.

247. **James W. Lee** Ω, L. Mets, and E. Greenbaum (May 7-11, 2000), **Improvement of photosynthetic efficiency through reduction of chlorophyll antenna size**, presented at the 22nd Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, TN.

248. **James W. Lee** Ω, L. Mets, and E. Greenbaum (May 7-11, 2000), **A new strategy for global CO_2 sequestration**, presented at the 22nd Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, TN.

249. **James W. Lee***, J. Krug, C.V. Tevault, R. Collins and E. Greenbaum (February 13-17, 1999) **Molecular Ionic Probes: A new class of Hill reagents for photosystem II**, presented at 43rd Annual Meeting of Biophysical Society, Baltimore, Maryland.

250. **E. Greenbaum**, J. W. Lee, and I. Lee (August 17-22, 1998). **New photosynthetic pathways: Molecular electronics, CO_2 reduction, and H_2 production**, presented at the 11th International Congress on Photosynthesis, Budapest, Hungary.

251. **James W. Lee** Ω, I. Lee, and E. Greenbaum (June 21-26, 1998). **From physics and chemistry of photosynthesis to its potential application in nanofabrication and optoelectronics**, presented at the Gordon Research Conference: Nanostructure Fabrication, Tilton School, New Hampshire.

252. **James W. Lee**, R. T. Collins, and E. Greenbaum (May 3-7, 1998). **A new class of Hill reagents and their potential for production of fuels by nanofabrication and biometallocatalysis**, presented at the 20th Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, Tennessee.

253. **I. Lee** Ω, J. W. Lee, and E. Greenbaum (May 3-7, 1998). **Immobilization of oriented photosystem I reaction centers**, presented at the 20th Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, Tennessee.

254. **James W. Lee** Ω, X. Zhang, R. Collins, I. Lee, and E. Greenbaum (February 22-26, 1998). **Electro-energized photon emission from photosynthetic membrane**, presented at the Biophysical Society Annual Meeting, Kansas City, Missouri.

255. **James W. Lee** and E. Greenbaum (July 5-10, 1997). **A new perspective on solar energy conversion by photosynthesis**, presented at the 25th Annual Meeting of American Society For Photobiology, St. Louis, Missouri.

256. **James W. Lee** Ω, I. Lee, and E. Greenbaum (July 5-10, 1997). **Nanofabrication for optoelectronics and solar energy conversion using photosynthetic reaction centers**, presented at the 25th Annual Meeting of American Society For Photobiology, St. Louis, Missouri.

257. **I. Lee** Ω, J. W. Lee, and E. Greenbaum (May 10-15, 1997). **Scanning Probe Microscopies for photosystem I molecular electronics**, Presented at the Scanning Microscopy 1997 Meeting, Chicago, Illinois.

258. James W. Lee, I. Lee, and **E. Greenbaum** (March 21-23, 1997). **From physics and chemistry of photosynthesis to its potential applications in nanofabrication and optoelectronics**, Fourteenth Annual Eastern Regional Photosynthesis Conference, Woods Hole, Massachusetts.

259. **James W. Lee***, I. Lee and E. Greenbaum (Sept. 8-12, 1996). **Platinization: A novel technique to anchor photosystem I reaction centers onto a metal surface on nanometer scale at biological temperature and pH,** presented as an invited talk at the Fourth International Conference on Nanometer-Scale Science and Technology, Beijing International Conventional Center, Beijing, P. R. China.

260. **I. Lee** Ω, J. W. Lee, and E. Greenbaum (Oct. 14-18, 1996). **Construction and characterization of photosystem I reaction centers on modified gold surfaces**, presented at the 43rd Annual National Symposium of the American Vacuum Society, Philadelphia, Pennsylvania.

261. **James W. Lee** Ω and Elias Greenbaum (May 9-13, 1994). **Biometallocatalysis for production of fuels and chemicals with photosynthetic water splitting**, presented at the 16th Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, Tennessee.

262. **James W. Lee** Ω and E. Greenbaum (July 25-30, 1993). **Molecular ionic probes and interfacial reactions of photosystem I**, presented at the 11th International Biophysics Congress, Budapest, Hungary.

263. **James W. Lee** Ω, Thomas G. Owens, Philip D. Laible and Elias Greenbaum (March 5-11, 1994). **Effect of platinization on excitation transfer dynamics and P700 photooxidation kinetics in isolated photosystem I**, presented at the 38th Annual Meeting of the Biophysical Society, New Orleans, Louisiana.

264. **James W. Lee** Ω and E. Greenbaum (September 1993). **Direct electrical contact with the reducing end of the photosynthetic electron transport chain and isolated photosystem I reaction centers**, presented at the 1993 Meeting of the International Society for Molecular Electronics and Biocomputing, Gaithersburg, Maryland.

265. **James W. Lee** Ω, Ginger V. Tevault, Steve Blankinship, Robert Collins and Elias Greenbaum (May 10-14, 1993) ***In situ* photoprecipitation of metallocatalysts for molecular hydrogen production by photosynthetic water splitting in thylakoids**, presented at the 15th Symposium on Biotechnology for Fuels and Chemicals, Colorado Springs, Colorado.

266. **James W. Lee** Ω and Elias Greenbaum (March 24-28, 1996). **A Perspective on Hydrogen Production by Photosynthetic Water-splitting**, presented at the 211th American Chemical Society National Meeting, New Orleans, Louisiana.

267. **James W. Lee** Ω, Stephen L. Blankinship and Elias Greenbaum (May 9-13, 1994). **Hydrogen and oxygen production by a *Chlamydomonas* cold strain mutant and the development of advanced photobiological reactors**, presented at the 16th Symposium on Biotechnology for Fuels and Chemicals, Gatlinburg, Tennessee.

268. **James W. Lee**, Warren Zipfel and Thomas G. Owens (February 1991). **Quenching of chlorophyll excited states by quinones: Application to the study of excited state transfer dynamics in Photosystem I.** The 35th Annual Meeting of Biophysical Society of America, San Francisco, California.

INVITED PRESENTATIONS AT COLLEGES AND UNIVERSITIES

269. **James W. Lee (**January 31, 2025**) Lee group efforts in horizontal gene transfer measurement, biochar surface-oxygenation, phosphorus sustainability, and bioenergetics (Type-B energetic processes)** presented at the 2025 Spring Seminar Series of Chemistry and Biochemistry, Old Dominion University.

270. **James W. Lee (**February 2, 2023**) Discovery of Type-B energetic process and its associated scientific implications,** presented at the 2023 Spring Seminar Series of Chemistry and Biochemistry, Old Dominion University.

271. **James W. Lee** (October 4, 2019) **Protonic Capacitor: Why mitochondria develop cristae?** presented at the 2019 Fall Seminar Series of Chemistry and Biochemistry, Old Dominion University.

272. **James W. Lee** (January 29, 2019) **Isothermal Utilization of Environmental Heat through Electrostatically Localized Protons at liquid-Membrane Interface: Our Brain Using Protonic Circuits?** presented at the Frank Reidy Research Center for Bioelectrics Seminar Series, Old Dominion University.

273. **James W. Lee** (January 25, 2019) **Lee Group Research Projects: Isothermal Utilization of Environmental Heat by Localized Protons at the Liquid-Membrane Interface**, presented at the 2018 Spring Seminar Series of Chemistry and Biochemistry, Old Dominion University.

274. **James W. Lee** (February 1, 2018) **Biosafety Guarded Transgenic Cyanobacteria for Photosynthetic Biofuel Production**, presented at the 2018 Spring Seminar Series of Chemistry and Biochemistry, Old Dominion University.

275. **James W. Lee** (September 8, 2017) **Surface-Oxygenated Biochar and Transgenic Algae for Sustainability on Earth**, presented at the 2017 Fall Seminar Series of Chemistry and Biochemistry, Old Dominion University.

276. **James W. Lee** (September 28, 2017) **Elucidating the 30-Year-Longstanding Bioenergetics Mystery in Alkalophilic Bacteria**, presented at the 2017 Fall Seminar Series of Chemistry and Biochemistry, Old Dominion University.

277. **James W. Lee** (September 2, 2015) **Interdisciplinary Projects on Advanced Biochars, Biofuels and Bioenergetics**, presented as an invited talk for the colloquium at the Physics Department, Old Dominion University.

278. **James W. Lee** (October 24, 2014) **Advanced Biochars, Biofuels and Bioenergetics**, presented at the 2014 Fall Seminar Series of Chemistry and Biochemistry, Old Dominion University.

279. **James W. Lee (**September 6, 2012) **BioEnergy and Environments: Research Projects in Lee Laboratory**, presented at the 2012 Fall Seminar Series of Chemistry and Biochemistry, Old Dominion University.

280. **James W. Lee** (March 29, 2012) **Sustainability: Smokeless Biomass Pyrolysis for Biochar Soil Amendment and Global Carbon Sequestration** and **ODU's Chemistry and Biochemistry Graduate Program**, presented at the Department of Chemistry and Biochemistry seminar series, George Mason University.

281. **James W. Lee** (September 16, 2010) **Synthetic biology for photobiological production of hydrogen and advanced biofuels from carbon dioxide and water**, presented at the ME 2010 Fall Seminar Series, Whiting School of Engineering, Johns Hopkins University.

282. **James W. Lee** (January 19, 2010) **Smokeless Biomass Pyrolysis for Producing Biofuels and Biochar to Control Global Warming**, presented at the Energy and Environment Research Workshop, Johns Hopkins University.

283. **James W. Lee** (March 6, 2009) **Energy and Environment of Tomorrow: Biofuels and Global Carbon Sequestration**, presented at the Energy and Environment Seminar series, Johns Hopkins University.

284. **James W. Lee** (December 22, 2009) **Energy and Environment of Tomorrow: Biofuels and Global Carbon Sequestration**, presented at the Science and Technology University of China.

285. **James W. Lee** (December 12-14, 2001) **Chemical and biological catalysis for clean energy production and CO_2 sequestration**, Zhejiang University of Technology, Hangzhou, China

286. **James W. Lee** (December 17-19, 2001) **From physics and chemistry of photosynthesis to nanofabrication for clean energy and high technology electronics**, Zhejiang University, Hangzhou, China.

287. **James W. Lee** (Sept. 16-17, 1996). **Nanofabrication for construction of high technology optoelectronic devices using isolated photosynthetic reaction centers,** invited seminars, Institute of Botany and Institute of Chemistry, Chinese Academy of Science, Beijing, P. R. China.

288. **James W. Lee** (Sept. 25, 1996). **From physics and chemistry of photosynthesis to its potential applications in high tech electronics by nanofabrication**, invited lecture, Hangzhou University, Hangzhou, P. R. China.

289. **James W. Lee** (December 7, 1995). **From physics and chemistry of photosynthesis to its potential applications in high tech electronics by nanofabrication**, Seminar at the Department of Chemistry, University of Tennessee, Knoxville.

290. **James W. Lee** (March 4, 1993). ***In situ* photoprecipitation of metallocatalysts for molecular hydrogen production by photosynthetic water splitting in thylakoids**, ORNL Chemical Technology Division Seminar.

291. **James W. Lee** (April 1993)**. Excitation Transfer Dynamics and P700 Photooxidation Kinetics in Photosystem I**, Biophysics Seminar, Cornell University, Ithaca, New York.

292. **James W. Lee** (October 12, 1993). **P700 Photooxidation and $P700^+$ reduction kinetics in isolated photosystem I preparations**, Oak Ridge National Laboratory, Chemical Technology Division Seminar.

293. **James W. Lee** (April 29, 1992)**. Excitation Transfer Dynamics in Photosystem I**. Oak Ridge National Laboratory, Chemical Technology Division Seminar.

UNIVERSITY SERVICE

294. **Served as faculty Marshal for Old Dominion University commencement,** TED Constant Convocation Center (May 2024).

295. **Served as Chair of the Department of Chemistry and Biochemistry, Promotion and Tenure Committee** in 2024.

296. **Served as Chair of an ODU Hearing Panel on a major Faculty-ODU Administration Grievance case** (May 18 – December 18, 2023)

297. **Served as Chair of the Department of Chemistry and Biochemistry, Promotion and Tenure Committee** since September 2022

298. **Served as Co-Chair of the Department of Chemistry and Biochemistry, Research Advancement Committee** since September 2022

299. **Served on Department of Chemistry and Biochemistry, Graduate Studies Committee** since November 2023.

300. **Served on the College of Sciences Research Committee** since 2022

301. **Served as faculty Marshal for Old Dominion University commencement,** TED Constant Convocation Center (December 2021).

302. **Served as faculty Marshal for Old Dominion University 131th commencement,** TED Constant Convocation Center (December 2019).

303. **Served as faculty Marshal for Old Dominion University 130th commencement,** TED Constant Convocation Center (May 2019).

304. **Served as Trailing Marshal for Old Dominion University 129th commencement,** TED Constant Convocation Center (December 15, 2018).

305. **Served as Lead Marshal for Old Dominion University 128th commencement,** TED Constant Convocation Center (May 2018).

306. **Served on the Department of Chemistry and Biochemistry Graduate Studies Program Committee** (2014 ─ present).

307. **Served on the Department of Chemistry and Biochemistry Undergraduate Program Committee** (2016/1 ─ present).

308. **Served as Assistant Director**, **Virginia Coastal Energy Research Consortium**, Old Dominion University (2010/12─2017/6).

309. **Served on the Department of Chemistry and Biochemistry faculty search and hiring committee** (2011-2012).

310. **Served as the Department of Chemistry and Biochemistry Seminar Coordinator** (Fall Semester 2012).

311. **Served as the Advisor for 6 Department of Chemistry and Biochemistry Senior Thesis Research Students** (Ashley Pullin, Richard Jones, Devki Gajera, Sean Catley, Cedric Nelson and Andriana Zourou) projects (August 2012 ─ present).

312. **Served as the Mentor for over 70 undergraduate research projects** through Chem 498 (Independent Undergraduate Students Research) and the Old Dominion University VOLUNTEER OR VISITING SCHOLAR AGREEMENT Program (2010/12 ─ present).

313. **Served as the Member of 48 Ph.D. and M.S. guidance committees** for Old Dominion University's Department of Chemistry and Biochemistry and Department of Civil & Environmental Engineering (2010/12 ─ present).

314. **Served as the Department of Chemistry and Biochemistry Seminar Coordinator** (Fall Semester 2017).

315. **Served as Faculty Marshal for the 126th and 127th Old Dominion University Commencements, TED Constant Convocation Center** (May 2017, and December 16, 2017).

316. **Serving as the Department of Chemistry and Biochemistry Undergraduate Research Program Committee** (Spring 2018).

317. **Served on the Department of Chemistry and Biochemistry Promotion & Tenure Committee** (2017/8 ─ present).

PROFESSIONAL SERVICE

318. **Served as a lead Panel Reviewer** for the USDA NIFA/BRAG Program grant applications in Summer 2024.

319. **Served as Editor for the Energies journal's special issue on "Advancements in Thermodynamics and Type-B Energy Processes: Applications and Implications"** (October 2021 – present).
https://www.mdpi.com/journal/energies/special_issues/27D3042CW5

320. **Organized and Chaired the 2022 MDPI Energies Webinars/Seminars Series I** (November 9, 2022), **II** (November 16, 2022), **and III** (November 23, 2022) **on Advanced Thermodynamics, Type-B Energetic Processes and Their Applications**. https://energies-8.sciforum.net/#welcome_chair; https://www.mdpi.com/journal/energies/events/15278; https://www.mdpi.com/journal/energies/events/15279

321. **Served as Grant Reviewer** for the French Government Neural Science Program: "Human Frontier Science Program" (November, 2022).

322. **Served as Lead (Primary) Reviewer in the "Secure Biosystems Design" Science Focus Area (SFA) merit review panel for DOE National Laboratories**, organized under the Genomic Science program for the Biological Systems Science Division of the Biological and Environmental Research (BER) Program within the U.S. Department of Energy's (DOE) Office of Science (2020 summer).

323. **Served as Organizer (Chair) for the 2021 American Society for Biochemistry and Molecular Biology (ASBMB) Virtual Event**: Protonic Bioenergetics and Action Potential Webinars/Seminars.

324. **Served as Judge** for the virtual Student Research Achievement Award (SRAA) Bioenergetics Poster Competition at the Biophysical Society 65th Annual Meeting, February 22-26, 2021.

325. **Served as Biochemistry Textbooks Reviewer** for Oxford University Press, USA (2014 – present).

326. **Served as Grant Reviewer** for U.S. Department of Energy, Office of Science (2015-present).

327. **Served as a Panel Reviewer for the U.S. Department of Energy's** Hydrogen and Vehicles Technologies Programs (2010-2011).

328. **Served as Grant Reviewer** for Thomas F. Jeffress and Kate Miller Jeffress Memorial Trust (2012-2014).

329. **Served as Academic Editor** of the Journal of Advances in Biology and Biotechnology (2014 – present).

330. **Served as Editorial Board Member** of the Bioenergetics journal (2012 – present).

331. **Served as Editorial Board Member** for the Journal of Plant Biochemistry & Physiology (2012 – April 2019).

332. **Served as Editor-in-Chief** for the Journal of Plant Biochemistry & Physiology (October 2015 – April 2019).

333. **Served as Chair and Organizing Committee Member** for the "International Conference and Exhibition on Biochemical & Molecular Engineering" during October 7-8, 2013 at San Antonio, Texas, USA.

334. **Served as professional referee for ACS journal**: Environmental Science and Technology (2010 – present).

335. **Served as professional referee for ACS journal**: ACS Sustainable Chemistry & Engineering (2015 – present).

336. **Served as professional referee for journal**: Biotechnology Resources (2010 – present).

337. **Served as professional referee for Royal Society of Chemistry (RSC) journal**: Energy Environ. Sci. (2010 – present).

338. **Served as an Editorial Board Member** of the Energies journal (February 2020 – present).

COMMUNITY SCIENTIFIC ENGAGEMENT SERVICE

339. **Served as Judge for the Virginia State Science & Engineering Fair**, Old Dominion University, April 15, 2023.

340. **Served as a Mentor for the Holiday STEM Party for 25 local homeless children - Graduate Student Affiliation of Chemistry and Biochemistry (GSACB)'s Inaugural Event** at the New Chem Building, December 20, 2023.

341. **Served as Head Judge for the 65th Annual Tidewater Science & Engineering Fair**, Old Dominion University, Webb Center, March 12, 2016.

342. **Served as Head Judge for the 64th Annual Tidewater Science & Engineering Fair**, Old Dominion University, Webb Center, March 14, 2015.

343. **Served as Judge for the 63th Annual Tidewater Science & Engineering Fair**, Old Dominion University, Webb Center, March 15, 2014.

344. **Hosted two high school science students from the underrepresented regions nearby ODU to visit and participate in our laboratory studies** with ODU's SEECR Biofuels Research Apprenticeship Program of High School Students (Summer 2013).

345. **Lee Lab Research Group reached out to certain K-12 audiences** including high-school students from the Ocean Lakes High School and subsequently **earned a special Certificate of Appreciation awarded to Lee in 2012 by the high school Principal** in recognition of Lee's "significant contributions, outstanding dedication, valuable service to the Ocean Lakes High School Mathematics & Science Academy"**.**

GRANTS AWARDED

Old Dominion University

James W. Lee (PD) and Lesley Greene (Co-PD) **GE Cyanobacteria Biosafety Assessment Research**
Agency: USDA Grant Award Number: 2023-33522-40974
Awarded Amount: $649,818
Project start date and end date: 09/01/2023 – 8/31/2026

James W. Lee (PD) and Lesley Greene (Co-PD) **Designer Algae Biotechnology Risk Assessment**
Agency: USDA Grant Award Number: 2016-33522-25624
Awarded Amount: $917,210 (USDA Amount: $458,605)
Project start date and end date: 09/01/2016 – 2/28/2021

James W. Lee (PD) and Thomas Vernier (Co-PD) **Test of a novel protonic action potential equation for biomedical science**
Agency: Multidisciplinary Biomedical Research Seed Funding Grant from the graduate school, the College of Sciences and the Center for Bioelectrics at Old Dominion University
Awarded Amount: $42,000
Project start date and end date: 01/19/2021 – 8/18/2022

Title: REU Site: Training Undergraduates in Electrochemical Technologies for Clean Fuels (Biofuels and Hydrogen) Production and Applications
PI: Xiaoyu Zhang Co-PI: Sandeep Kumar
Faculty mentors: Ayodeji Demuren, Shizhi Qian, Christopher Bailey, Orlando Ayala, Craig Bayse, James Lee, Alvin Holder
Agency: NSF Award number: 1560194
Awarded Amount: $339,450.00 (about $26.5k for lab supplies, summer stipends and accommodations and travel etc. for an REU student to work in James W. Lee's Lab)
Project start date and end date: 09/1/2016 - 08/31/2019.

James W. Lee (PI) and Sandeep Kumar (Co-PI) **For a Sustainable Future on Earth: High-Tech Biochar**
Agency: ODU Multidisciplinary Seed Funding Program
Awarded Amount: $50,000
Project start date and end date: 01/01/2013 – 12/30/2013

Undergraduate Research Grant for Kahtan Fadah of JW Lee (Mentor) Laboratory
Agency: ODU University Faculty Committee of the Honors College;
Awarded Amount: $1500
Project start date and end date: 01/06/2014 – 06/30/2015

Undergraduate Research Grant for Devki Gajera of JW Lee (Mentor) Laboratory
Agency: ODU University Faculty Committee of the Honors College;
Awarded Amount: $1500
Project start date and end date: 01/06/2014 – 06/30/2015

James W. Lee (PI) **ODU Faculty Research Startup package**
Agency: Old Dominion University
Awarded Amount: $630,000
Project start date and end date: 01/01/2011 – 12/30/2019

Oak Ridge National Laboratory

Robert C. Brown (PI), James W. Lee (Co-PI), Donald C. Reicosky (Co-PI) and Danny Day (Co-PI), USDA Grant No. 68-3A75-5-233 **Environmental Enhancement Through Corn Stover Utilization**.
Awarded Amount: Total $1,850,000 (Lee's portion: $450,000)
Project start date and end date: 3/30/2006 to 3/29/2009

James W. Lee (PI), NIH R21 Project **Experimental Research & Development for Rapid Sequencing Nanotechnology**
Agency: National Institute of Health, National Human Genome Research Institute (NHGRI)

Awarded Amount: $750,000
Project start date and end date: 2005/1-2008/1

James W. Lee (PI), NIH R21 Project **Computational Research & Development for Rapid Sequencing Nanotechnology**
Agency: National Institute of Health, National Human Genome Research Institute (NHGRI)
Awarded Amount: $700,000
Project start date and end date: 2005/1-2008/1

James W. Lee (PI), Seed Project **Designer algae for photosynthetic ethanol production**,
Agency: Oak Ridge National Laboratory Directed R&D Funds
Awarded Amount: $175,000
Project start date and end date: 2006/10-2008/1

James W. Lee (PI) **Photobiological H2 Production Systems: Creation of Designer Alga for Efficient and Robust Production of H2 from Water**,
Agency: EERE Photobiological Hydrogen Program, U.S. Department of Energy
Awarded Amount: $860,000
Project start date and end date: 2003/10-2006/9

James W. Lee (PI), **U.S. Department of Energy, Young Scientist Award** to J. W. Lee
Agency: U.S. Department of Energy, Office of Sciences
Awarded Amount: $250,000 (1999/1-2004/1)

Elias Greenbaum (PI) and James W. Lee (Co-PI), **DOE Basic Biochemical Energy Sciences Program**,
Agency: Office of Sciences, U.S. Department of Energy
Awarded Amount: $6,000,000
Project start date and end date: 1994/10-2006/9

Elias Greenbaum (PI) and James W. Lee (Co-PI), **Algal Hydrogen Production**
Agency: EERE Photobiological Hydrogen Program, U.S. Department of Energy
Awarded Amount: $3,500,000
Project start date and end date: 1992/10-2001/9

AWARDS, HONORS AND PRIZES

2023 American Physiological Society Award: History of Physiology Lectureship on "Better the Fundamental Understanding of Action Potential and Neural Stimulation" awarded at the American Physiology Summit, April 20-23, 2023 in the Convention Center, Long Beach, California, USA.

2020–present, recognized as a world-class scientist as among the recent Stanford University World ranking of scientists, which represents the top two (2) percent of the most-cited scientists in various disciplines in the world

Invited to serve as a Lead (Primary) Reviewer in the "Secure Biosystems Design" Science Focus Area (SFA) merit review panel for DOE National Laboratories, organized under the Genomic

Science program for the Biological Systems Science Division of the Biological and Environmental Research (BER) Program within the U.S. Department of Energy's (DOE) Office of Science (2020 summer).

Invited to attend Gordon Research Conference on Bioenergetics, June 2–7, 2019, Proctor Academy in Andover, NH, United States.

Invited to serve as a Chair of the Membrane Physical Chemistry II Session for the 63rd Biophysical Society Annual Meeting, held on March 2–6, 2019 in Baltimore, Maryland, USA.

Special Recognition to James W Lee in appreciation of his esteemed support as Editorial Board Member for Journal of Plant Biochemistry, Bio Molecular Engineering-2013 USA.

Certificate of Recognition to James W Lee for chairing the session on Biomolecular Research & Therapeutics, Plant Biochemistry and Systems Biochemistry Relation with Molecular Engineering and Glycomics & Lipidomics at the "International Conference and Exhibition on Biochemical & Molecular Engineering" October 07-08, 2013 Hilton San Antonio Airport, TX.

Certificate of Appreciation awarded (2012), in recognition of significant contributions, outstanding dedication, and valuable service to Ocean Lakes High School Mathematics & Science Academy.

FuelCellSouth 2006 Crystal Flame Innovation Award, presented by the FuelCellSouth Partners Forum with award ceremony held April 25, 2006 at the Columbia Metropolitan Convention Center, South Carolina, in recognition of the designer-alga H_2-production research accomplishment.

Certificate of Appreciation awarded by Chemical Sciences Division, Oak Ridge National Laboratory (2005), in recognition of accomplishment in R&D of an integrated technology concept with ammonia carbonation and biomass pyrolysis that has significant potential for clean energy production and carbon management worldwide.

1999–2004 U.S. Presidential Early Career Award for Scientists and Engineers, signed by the President (Clinton) of the United States and honored at the White House (1999).

Technical Achievement Award, honored by the President of Lockheed Martin Energy Research Corp. and Director of Oak Ridge National Laboratory (1999).

1998–2003 U.S. Department of Energy's Office of Science Young Scientist Award ($250,000), presented by U.S. Department of Energy Secretary (Bill Richardson) at DOE Washington Headquarters (1998).

Technical Publication Award of Merit for Scholarly/Professional Articles, honored by the American Society for Technical Communication/East Tennessee Chapter (1998).

Technical Achievement Award, honored by the President of Lockheed Martin Energy Research Corporation and Director of Oak Ridge National Laboratory (1997).

Technical Publication Awards of Achievement for Scholarly/Professional Articles, honored by the American Society for Technical Communication/East Tennessee Chapter (1997).

Technical Achievement Award, honored by the President of Lockheed Martin Energy Research Corporation and the Director of Oak Ridge National Laboratory (1996).

Outstanding Three Year Teaching Fellowship awarded by Dean of Cornell Graduate School (1991).

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Member of Biophysical Society (1996 – present).

Member of American Chemical Society (1998 – present);

Member of American Association for the Advancement of Science (1996 – present);

Member of American Society for Biochemistry and Molecular Biology (2015 – present);

Member of American Physiological Society (2020/8 – present);