# KEYNOTE SPEAKER

**Emily Rauscher, Ph.D.**
**President's Postdoctoral Fellow**
**Research Fellow, Astronomy, College of Literature, Science, and the Arts**
**University of Michigan**

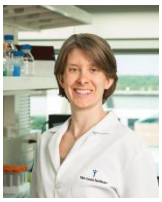
## *"Atmospheric studies of extrasolar planets: a young, exciting, and rapidly growing field"*

While the planets within our solar system have been studied for hundreds of years, it was only 20 years ago that the first exoplanet was discovered, orbiting a nearby star. Yet within the typical lifetime of a undergraduate, there have been thousands of exoplanets detected, most within the last several years. Even more exciting, perhaps, is the development in the last 10 years of methods that are being used to directly measure atmospheric properties of these planets. The (relatively) easiest exoplanets to observe are the type known as "hot Jupiters", exotic planets that push our understanding of planetary science beyond the bounds of the solar system. I will describe my work on modeling the atmospheres of these strange worlds, along with some explanation of how my career path led me to where I am today.

**Jennifer Moore, Ph.D.**
**Assistant Professor**
**Natural Resource Management Program**
**Biology Department**
**Grand Valley State University**

*"How do landscapes affect gene flow and connectivity of threatened reptiles and amphibians?"*

Landscapes can have profound effects on the functional connectivity of wildlife populations. Human-mediated landscape change can impose barriers that impede gene flow and isolate populations, which can ultimately result in elevated extinction risk. The nascent field of landscape genetics is increasingly being applied to elucidate the landscape and environmental factors that affect processes like population dynamics, dispersal, and gene flow. This talk will focus on the application of landscape genetic techniques to understand the impacts of landscape change on threatened amphibians and reptiles from New Zealand (tuatara, *Sphenodon punctatus*), Alaska (boreal toads, *Bufo boreas*), and Michigan (eastern box turtles, *Terrapene carolina carolina*). Results from these case studies provide evidence that natural and human-altered landscapes can strongly affect wildlife movements and dispersal at multiple scales, which has implications for conservation management of at-risk species.



**Mary E. Winn, Ph.D.**
**Core Manager**
**Bioinformatics & Biostatistics Core**
**Van Andel Research Institute**

*"Life at the intersection of biology, statistics, mathematics, and computer science"*

As data sets continue to grow in size and complexity the need for the interdisciplinary skills of a bioinformatician are in increasing demand. A successful bioinformatician will have an array of skills including the ability to manage, interpret, and analyze large data sets; familiarity with and the ability to apply relevant statistical and mathematical concepts; proficiency in a number of scripting languages; and detailed knowledge of a variety of biological disciplines. Because of this need for a broad skill set there are many paths to becoming a bioinformatician and many areas of specialization. The best bioinformaticians don't come from one discipline or another. They come from self-motivated, independent thinkers and problem-solvers for whom starting the day not knowing how to do something and figuring out how to do it is a way of life. Our group puts these skills to the test analyzing a variety of different types of data from next-generation sequencing data to quantitative imaging data and more.

# ABSTRACTS OF FACULTY RESEARCH TALKS

**Deanna van Dijk, Ph.D., Professor**
**Geology, Geography & Environmental Studies, Calvin College**

*"Building our Knowledge of Michigan Coastal Dunes: A Few Grains at a Time"*

Described as the largest collection of freshwater dunes in the world, Michigan's coastal dunes are well-loved and frequently visited but not well-researched. Research students and faculty from a handful of Michigan institutions have been piecing together an understanding of the dunes along the Lake Michigan coast. Studies of contemporary dune activity by Calvin College researchers include investigating dune characteristics, changes and influential variables; studying patterns of human impacts; and evaluating the effectiveness of management strategies. Research projects are diverse, ranging from short-term studies to multi-year data collection efforts, from single-investigator projects to 30+ researchers focusing on the same dune, and from investigations by PhD scientists to first-year undergraduate students. The projects and investigators share a common goal of advancing knowledge by asking and answering interesting questions about the dunes. Results include a better understanding of storm and seasonal influences on dune changes, information for dune managers about the effectiveness of their actions, and a growing list of additional questions to investigate. The multi-faceted research on Michigan coastal dunes illustrates the value of a community of scientists for building knowledge about a research topic.

**Clark Danderson, Ph.D., Professor**
**Biology Department, Director of the Aquinas, College Herbarium (AQC), Aquinas College**

*"The Arracacia Clade (Apiaceae): Attempting to Bring Order to a Disordered Complex"*

The *Arracacia* clade (Apiaceae: Apioideae) is a heterogeneous assemblage of 12 genera, comprising 111 species distributed in high montane temperate and sub-alpine habitats of meso- and South America. Recent molecular studies have indicated that some of the genera (i.e., *Arracacia*, *Coulterophytum*, and *Prionosciadium*) are polyphyletic. Initial cladistic analyses utilizing highly variable, fast-evolving nuclear ribosomal DNA (nrDNA) ITS sequence data were unable to adequately resolve the relationships among these taxa. To further resolve relationships in the clade, a study examining the utility of 20 non-coding chloroplast DNA (cpDNA) loci was performed using nine species representing disparate lineages, as well as intra- and intergeneric-level relationships based on the results of the aforementioned ITS analyses. The cpDNA regions investigated were chosen based on their utility at elucidating low-taxonomic level relationships as demonstrated in previous studies (i.e., Calviño et al., 2010; Miller et al., 2009; Shaw et al., 2005, 2007). To determine how many regions would be necessary to recover resolved phylogenies, a cost-benefit analysis involving the incremental inclusion of loci was performed. Regression analyses examined whether the total number of variable sites (potentially informative characters or PICs in Shaw et. al., 2005) are a good indicator of the total number of parsimony informative characters contained within a region. Additionally, regression analyses considered the effect of aligned sequence length on the total number of variable characters and the number of PI characters, and the relationship between indel length and homoplasy. This study demonstrated that many of the regions commonly used to resolve low-level relationships in angiosperms are not adequate in the *Arracacia* clade and that the combination of the five fastest-evolving non-coding cpDNA loci and nrDNA ITS provide similar resolution as using 20 non-coding cpDNA loci and ITS.

# 8th ANNUAL
# WEST MICHIGAN REGIONAL UNDERGRADUATE SCIENCE RESEARCH CONFERENCE
# 2014 POSTER PRESENTATIONS

## AUTHORS LIST

**Pages 4-8 includes a list of principal presenting authors by last name (alphabetical order)**

| Last Name | First Name | Poster Number | Institution | Field of Study |
|---|---|---|---|---|
| Abe | Ayaka | 33 | Kalamazoo College | Biology |
| Arnold | Nicholas | 48 | Alma College | Biology |
| Ayoola | Ayooluwa | 116 | Calvin College | Engineering |
| Beamish | Alana | 123 | Lansing Community College | Molecular Biotechnology |
| Bell | Jedidiah | 5 | Calvin College | Biochemistry |
| Bell | Abbegail | 105 | Calvin College | Chemistry |
| Bennett | Sophie | 47 | Grand Valley State University | Biology |
| Bischak | Michael | 134 | Hope College | Physics |
| Blohm | Laura | 56 | Calvin College | Biomedical Engineering |
| Boersma | Peter | 40 | Calvin College | Biology |
| Bontekoe | Jack | 67 | Grand Valley State University | Biomedical Sciences |
| Bootsma | Andrea | 94 | Calvin College | Chemistry |
| Brunner | Michael | 13 | Grand Valley State University | Biochemistry |
| Buteyn | Nate | 72 | Calvin College | Biotechnology |
| Butler | Dorothy | 59 | Grand Valley State University | Biomedical Sciences |
| Cave | Courtney | 63 | Grand Valley State University | Biomedical Sciences |
| Chang | Gloria | 76 | Hope College | Cell and Molecular Biology / Genetics |
| Chapa | Delia | 127 | Grand Valley State University | Neuroscience |
| Chapman | Chloe | 117 | Ferris State University | Forensic Biology |
| Christian | Erika | 125 | Lansing Community College | Molecular Biotechnology |
| Christopher | Joy | 93 | Calvin College | Chemistry |
| Conrad | Heidi | 95 | Grand Valley State University | Chemistry |
| Cooper | Carl | 114 | Calvin College | Engineering |
| Courtney | Deirdre | 31 | Western Michigan University | Biology |
| Crain | Patrick | 108 | Calvin College | Computer Science |
| Craven | Sarah | 61 | Grand Valley State University | Biomedical Sciences |
| Cunningham | Jeremy | 104 | Grand Valley State University | Chemistry |
| Cushman | Sean | 17 | Hope College | Biochemistry |
| DeBruine | Zachary | 84 | Hope College | Cell and Molecular Biology |
| DeGlopper | Kimberly | 91 | Hope College | Chemistry |
| DeJong | Leanna | 25 | Calvin College | Biology |
| DeJonge | Lydia | 2 | Calvin College | Biochemistry |
| DeKock | Roger | 106 | Calvin College | Chemistry |
| Dennis | Joseph | 97 | Hope College | Chemistry |
| DeVries | Jodie | 34 | Calvin College | Biology |

| Last Name | First Name | Poster Number | Institution | Field of Study |
|---|---|---|---|---|
| Dietrich | Margaret | 77 | Grand Valley State University | Cell and Molecular Biology |
| Disselkoen | Kyle | 100 | Calvin College | Chemistry |
| Dreyer | Krystin | 121 | Aquinas College | Mathematics |
| Duke | Catherine | 101 | Grand Valley State University | Chemistry |
| Ensink | Elliot | 88 | Grand Valley State University | Cell and Molecular Biology |
| Fields | Allison | 92 | Alma College | Chemistry |
| Fisch | Alexander | 78 | Grand Valley State University | Cell and Molecular Biology |
| Flikweert | Niecia | 105 | Calvin College | Chemistry |
| Flores | Alicia | 64 | Grand Valley State University | Biomedical Sciences |
| Foxa | Gabrielle | 85 | Grand Valley State University | Cell and Molecular Biology |
| Francoeur | Paul | 83 | Grand Valley State University | Cell and Molecular Biology |
| Fujiwara | Rina | 19 | Kalamazoo College | Biochemistry |
| Gardner | Eve | 7 | Michigan State University | Biochemistry |
| Gilbert | Timothy | 81 | Grand Valley State University | Cell and Molecular Biology |
| Glass | Sarah | 12 | Kalamazoo College | Biochemistry |
| Glupker | Courtney | 24 | Calvin College | Biology |
| Gould | Breanna | 110 | Grand Valley State University | Ecology and Evolution |
| Greiner | Kaitlyn | 42 | Kalamazoo College | Biology |
| Grimmer | Jared | 28 | Kalamazoo College | Biology |
| Hamilton | Sean | 132 | Grand Valley State University | Physics |
| Harris | Danielle | 131 | Grand Valley State University | Physics |
| Hegg | Taylor | 9 | Calvin College | Biochemistry |
| Heidmann | Brian | 93 | Calvin College | Chemistry |
| Hentig | James | 54 | Western Michigan University | Biology |
| Hilbrands | Brian | 118 | Calvin College | Geography |
| Hillers | Lauren | 14 | Hope College | Biochemistry |
| Holloway | Emily | 41 | Kalamazoo College | Biology |
| Hollowell | Matthew | 9 | Calvin College | Biochemistry |
| Holmes | Catherine | 26 | Cornerstone University | Biology |
| Hooker | Stacy | 38 | Calvin College | Biology |
| Hromada | Susan | 9 | Calvin College | Biochemistry |
| Hughey | Audrey | 118 | Calvin College | Geography |
| Huisingh | Nicholas | 66 | Grand Valley State University | Biomedical Sciences |
| Hyde | Charles | 23 | Aquinas College | Biology |
| Janardan | Veena | 67 | Grand Valley State University | Biomedical Sciences |
| Janardan | Veena | 87 | Grand Valley State University | Cell and Molecular Biology |
| Jansens | Kyle | 120 | Aquinas College | Mathematics |
| Jensen | James | 111 | Grand Rapids Community College | Ecology and Evolution |
| John | Tibin | 126 | Kalamazoo College | Neuroscience |
| Johnson | Andrew | 130 | Hope College | Physics |

| Last Name | First Name | Poster Number | Institution | Field of Study |
|---|---|---|---|---|
| Justice | Sean | 123 | Lansing Community College | Molecular Biotechnology |
| Kamgang | Ronald | 77 | Grand Valley State University | Cell and Molecular Biology |
| khudhur | Basma | 75 | Grand Valley State University | Cell and Molecular Biology |
| Kitzmiller | Scott | 18 | Alma College | Biochemistry |
| Knott | Jonathan | 35 | Calvin College | Biology |
| Kosak | Talon | 95 | Grand Valley State University | Chemistry |
| Kulesza | Alyssa | 96 | Grand Valley State University | Chemistry |
| Kwiatkowski | Megan | 91 | University of Michigan | Chemistry |
| Kyle | Barrett | 89 | Grand Valley State University | Cell and Molecular Biology |
| Lancewicz | Brandy | 70 | Alma College | Biotechnology |
| Langeland | Monica | 38 | Calvin College | Biology |
| Laut | Clare | 122 | Michigan State University | Microbiology |
| Leach | Erin | 96 | Grand Valley State University | Chemistry |
| Lear | Alan | 103 | Grand Valley State University | Chemistry |
| Leisman | Dorthea | 38 | Calvin College | Biology |
| Leistra | Abigail | 3 | Calvin College | Biochemistry |
| Leonard | Brittany | 44 | Hope College | Biology |
| Lin | Jonathan | 51 | Calvin College | Biology |
| Linn | David | 60 | Grand Valley State University | Biomedical Sciences |
| Locher | Ali | 47 | Grand Valley State University | Biology |
| Lodge | Evans | 11 | Calvin College | Biochemistry |
| Lusardi | Lindsey | 60 | Grand Valley State University | Biomedical Sciences |
| McDaniel | Michael | 120 | Aquinas College | Mathematics |
| McMillan | Adam | 69 | Grand Valley State University | Biomedical Sciences |
| Merz | Lauren | 135 | Calvin College | Pre-Medicine |
| Michmerhuizen | Anna | 22 | Calvin College | Biochemistry |
| Molesky | Mason | 129 | Alma College | Physics |
| Morsches | Samantha | 1 | Grand Valley State University | Aquatic Biology |
| Mullen | Brandy | 16 | Hope College | Biochemistry |
| Mumuni | Salma | 57 | Western Michigan University | Biomedical Sciences |
| Munger | Megan | 36 | Albion College | Biology |
| Muriset | Rebecca | 71 | Ferris State University | Biotechnology |
| Nanda | Hezkiel | 116 | Calvin College | Engineering |
| Newman | Rebekah | 107 | Grand Valley State University | Computational Biology / Bioinformatics |
| Nguyen | Thuy-Nhi | 25 | Calvin College | Biology |
| Nguyen | Tran | 39 | Calvin College | Biology |
| Ousley | Emalee | 74 | Alma College | Biotechnology |
| Peet | Jason | 123 | Lansing Community College | Molecular Biotechnology |
| Peters | Larry | 49 | Aquinas College | Biology |
| Pierce | Nick | 99 | Aquinas College | Chemistry |
| Poirier | Nick | 58 | Grand Valley State University | Biomedical Sciences |
| Postma | David | 35 | Calvin College | Biology |

| Last Name | First Name | Poster Number | Institution | Field of Study |
|---|---|---|---|---|
| Pouch | Molly | 124 | Lansing Community College | Molecular Biotechnology |
| Quan | Jenai | 52 | Calvin College | Biology |
| Rawls | Brian | 104 | Grand Valley State University | Chemistry |
| Reed | Chris | 64 | Grand Valley State University | Biomedical Sciences |
| Reiber | Chelsea | 79 | Grand Valley State University | Cell and Molecular Biology |
| Reidy | Connor | 98 | Calvin College | Chemistry |
| Richard | Cassidy | 53 | Calvin College | Biology |
| Rienstra | Miriam | 15 | Calvin College | Biochemistry |
| Rocha | Jeremiah | 115 | Calvin College | Engineering |
| Rohraff | Dallas | 90 | Grand Valley State University | Cell and Molecular Biology |
| Sarkissian | Christina | 65 | Grand Valley State University | Biomedical Sciences |
| Schaar | Claire | 80 | Hope College | Cell and Molecular Biology |
| Scholten | Kayla | 3 | Calvin College | Biochemistry |
| Schreodter | Lindsey | 60 | Grand Valley State University | Biomedical Sciences |
| Schriemer | Clara | 29 | Hope College | Biology |
| Schroder | Emma | 60 | Grand Valley State University | Biomedical Sciences |
| Schroedter | Lindsey | 60 | Grand Valley State University | Biomedical Sciences |
| Schuiteman | Sam | 20 | Calvin College | Biochemistry |
| Shady | Justin | 87 | Grand Valley State University | Cell and Molecular Biology |
| Shepard | Alyssa | 8 | Central Michigan University | Biochemistry |
| Shomsky | Jonathan | 133 | Calvin College | Physics |
| Simon | Isaac | 137 | Grand Valley State University | Psychology |
| Simoni | Marisa | 137 | Grand Valley State University | Psychology |
| Sinniah | Ranu | 6 | Calvin College | Biochemistry |
| Smit | Kara | 50 | Calvin College | Biology |
| Smith | Jayson | 62 | Central Michigan University | Biomedical Sciences |
| Stack | Sara | 32 | Kalamazoo College | Biology |
| Stapleton | Abby | 37 | Calvin College | Biology |
| Steensma | Erika | 46 | Calvin College | Biology |
| Strikwerda | Caitlin | 30 | Calvin College | Biology |
| Sullivan | Sean | 102 | Alma College | Chemistry |
| Swain | Alexander | 55 | Hope College | Biology |
| Sylvester | Francis | 67 | Grand Valley State University | Biomedical Sciences |
| Szarecka | Agnieszka | 107 | Grand Valley State University | Computational Biology / Bioinformatics |
| Tarpeh | Jamaal | 49 | Aquinas College | Biology |
| Taylor | Heather | 47 | Grand Valley State University | Biology |
| Taylor | Merritt | 66 | Grand Valley State University | Biomedical Sciences |
| Taylor | Merritt | 68 | Grand Valley State University | Biomedical Sciences |
| Terschak | Nathan | 113 | Calvin College | Engineering |
| Thompson | Bill | 86 | Grand Valley State University | Cell and Molecular Biology |
| Tieu | Jacqueline | 128 | Ferris State University | Neuroscience |

| Last Name | First Name | Poster Number | Institution | Field of Study |
|---|---|---|---|---|
| Uhl | Katie | 75 | Grand Valley State University | Cell and Molecular Biology |
| Ulmer | Miranda | 43 | Hope College | Biology |
| Valk | Josiah | 45 | Calvin College | Biology |
| van den Bergh | Wessel | 76 | Hope College | Cell and Molecular Biology / Genetics |
| Van Norman | George | 124 | Lansing Community College | Molecular Biotechnology |
| Van Winkle | Margaret | 4 | Calvin College | Biochemistry |
| Vander Stel | Mark | 109 | Calvin College | Computer Science |
| VanderWeide | Andrew | 103 | Grand Valley State University | Chemistry |
| VanOpstall | Calvin | 73 | Calvin College | Biotechnology |
| Veazey | Joshua | 130 | Grand Valley State University | Physics |
| Vos | Aimee | 10 | Calvin College | Biochemistry |
| Watson | McLane | 27 | Hope College | Biology |
| Weidman | Jared | 106 | Calvin College | Chemistry |
| Withdrawn | | 21 | | |
| Withdrawn | | 119 | | |
| Wyman | Leslie | 82 | Grand Valley State University | Cell and Molecular Biology |
| Zebolsky | Aaron | 136 | Ferris State University | Pre-Medicine |
| Zimmer | Mary | 128 | Ferris State University | Neuroscience |
| Zylstra | Isaac | 112 | Calvin College | Economics |

# 2014 POSTER PRESENTATIONS

**Pages 9-22 include a list of principal presenting authors and the titles of their presentations. This list is in alpha order by major and then institution.**

**1. Samantha Morsches, Grand Valley State University** **Aquatic Biology**

**(Co-Authors: David J. Janetski, Carl R. Ruetz III)**

*"Spatial patterns of fish communities in Lake Michigan tributaries"*

**2. Lydia DeJonge, Calvin College** **Biochemistry**

**(Co-Authors: Nicole L. Michmerhuizen, Margaret A. Van Winkle, Amanda B. Witte; Kumar Sinniah)**

*"A Biophysical Study of the Interaction between Insulin and G-Quadruplex DNA"*

**3. Abigail Leistra, Calvin College** **Biochemistry**

**(Co-Authors: Kayla Scholten, Lydia J. DeJonge, Kumar Sinniah)**

*"A Dynamic Force Spectroscopy Study of the Interaction Between G-Quadruplex DNA and Insulin"*

**4. Margaret Van Winkle, Calvin College** **Biochemistry**

**(Co-Authors: Kumar Sinniah)**

*"A Microcalorimetry Study of the Interaction between Hexameric Insulin and G-Quadruplex DNA"*

**5. Jedidiah Bell, Calvin College** **Biochemistry**

**(Co-Authors: Dr. Brendan Looyenga; Dr Larry Louters)**

*"BRET to Explore the Aggregation of GluT1"*

**6. Ranu Sinniah, Calvin College** **Biochemistry**

**(Co-Authors: Mike Catalano, Dr. Kent Gates)**

*"Can Arylamines form Covalent Adducts with Abasic Sites in DNA?"*

**7. Eve Gardner, Michigan State University** **Biochemistry**

**(Co-Authors: Eve Gardner, Witawas Handee, Min-Hao Kuo)**

*"Effect on Phospholipid Content from TAG Metabolism"*

**8. Alyssa Shepard, Central Michigan University** **Biochemistry**

**(Co-Authors: Dr. Michelle Steinhilb; Alyssa Shepard)**

*"Examinig the intracellular breakdown of toxic tau fragments: Optimizing Drosophila neuron culture"*

**9. Taylor Hegg & Matthew Hollowell, Calvin College** **Biochemistry**

**(Co-Authors: Susan Hromada, Alexandra Bognar, and Dr. David E. Benson)**

*"Formation, Function, and Biological Scope of Tyrosine-Cysteine Crosslinking"*

**10. Aimee Vos, Calvin College** **Biochemistry**

**(Co-Authors: Dr. Larry Louters, Dr. Brendan Looyenga, Dr. Eric Arnoys)**

*"GLUT1 Abundance in Lipid Rafts"*

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**11. Evans Lodge, Calvin College** **Biochemistry**

**(Co-Authors: Jed Bell, Kathryn Wrobel, Dr. Larry Louters)**

*"Glut1 Surface Expression and Activation"*

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**12. Sarah Glass, Kalamazoo College** **Biochemistry**

**(Co-Authors: Sarah M. Glass, Victoria M. Osorio, Michael J. Glista, Parker W. de Waal, Laura Lowe Furge)**

*"Interactions of Human CYP2D6 Polymorphisms with the Mechanism Based Inactivator SCH 66712"*

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**13. Michael Brunner, Grand Valley State University** **Biochemistry**

**(Co-Authors: Rachel A. Powers)**

*"Investigating the Potential of Arylboronic Acids as Novel OXA-1 β-Lactamase Inhibitors"*

---

**14. Lauren Hillers, Hope College** **Biochemistry**

**(Co-Authors: Carissa Perez Olsen)**

*"Investigating the Protective Role of the Peroxisome in Stress Response with C. elegans"*

---

**15. Miriam Rienstra, Calvin College** **Biochemistry**

**(Co-Authors: Calvin Van Opstall, Brendan Looyenga)**

*"LRRKing for Cure"*

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**16. Brandy Mullen, Hope College** **Biochemistry**

**(Co-Authors: Roudeland Metellus, Megan Munger, Luke Ragon, Dr. Micheal Pikaart)**

*"Microbial Tracking to Identify Fecal Contaminants in Recreational Surface Waters"*

---

**17. Sean Cushman, Hope College** **Biochemistry**

**(Co-Authors: Abigail Schnell, Dr. Maria Burnatowska-Hledin)**

*"Mutational analysis of VACM-1 and Its Implications for Cancer"*

---

**18. Scott Kitzmiller, Alma College** **Biochemistry**

*"Potential Inhibitor of Group-1 Neuraminidase"*

---

**19. Rina Fujiwara, Kalamazoo College** **Biochemistry**

**(Co-Authors: Amanda K. Bolles, Laura L. Furge)**

*"SCH66712 and EMTPP are the First Mechanism Based Inactivators of Both Human CYP2D6 and CYP3A4"*

---

**20. Sam Schuiteman, Calvin College** **Biochemistry**

**(Co-Authors: Drs. Eric Arnoys, Larry Louters, Brendan Looyenga and Aimee Vos)**

*"The Effect of Cell Density on GLUT1 Activity"*

**21. ABSTRACT WITHDRAWN**

**22. Anna Michmerhuizen, Calvin College** **Biochemistry**

**(Co-Authors: Zac Drees, SeongEun Kim, and Douglas A. Vander Griend)**

*"The Practical Mathematical Limits of Global Analysis"*

**23. Charles Hyde, Aquinas College** **Biology**

**(Co-Authors: Dr. Clark Danderson)**

*"An examination of Synthyris bullii and its presence and abundance in Michigan"*

**24. Courtney Glupker, Calvin College** **Biology**

**(Co-Authors: Mark P. Schotanus, John L. Ubels)**

*"Apoptotic pathway and effect of potassium on corneal epithelial cells exposed to UVB radiation"*

**25. Leanna DeJong &Thuy-Nhi Nguyen, Calvin College** **Biology**

**(Co-Authors: Darren Proppe)**

*"Attracting Songbirds with Conspecific playback: a multispecies approach"*

**26. Catherine Holmes, Cornerstone University** **Biology**

*"Black-Throated Blue Warbler as a Forest Interior Species"*

**27. McLane Watson, Hope College** **Biology**

**(Co-Authors: Penny Berger, Dr .Cindy Miranti)**

*"Discovering ING4 Targets Important in Prostate Epithelial Cell Differentiation Using RNA Sequencing"*

**28. Jared Grimmer, Kalamazoo College** **Biology**

**(Co-Authors: Dr. Ann M. Fraser)**

*"Do bees prefer spotted knapweed over other co-flowering plant species?"*

**29. Clara Schriemer, Hope College** **Biology**

**(Co-Authors: Dr. Joe Nickels, Dr. Virginia McDonough)**

*"Effect of the ARV1 Mutation on Sterol Profiles of Candida albicans"*

**30. Caitlin Strikwerda, Calvin College** **Biology**

**(Co-Authors: Dr. Dave Warners, Caitlin Strikwerda)**

*"Effects of Climate Change on Blooming Times at Flat Iron Lake Preserve"*

**31. Deirdre Courtney, Western Michigan University** **Biology**

**(Co-Authors: Dr. David Karowe)**

*"Effects of Future Elevated Atmospheric CO2 on Pitcher Plant (Sarracenia purpurea and S. alata) Size, Nectar, Color and Prey Capture"*

**32. Sara Stack, Kalamazoo College** **Biology**

**(Co-Authors: Dr. Sara Tanis)**

*"Effects of the emerald ash borer, Agrilus planipennis, infestation on Carabidae abundance and diversity in southern Michigan"*

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**33. Ayaka Abe, Kalamazoo College** **Biology**

**(Co-Authors: Ayaka Nomichi, Takuro Tsutsumi, Yongtae Hwang, Kazuya Akiyama, Chiya Numako, Hitoshi Abe, Yasuhiro Niwa, Yoshito Mayumi, Kazuhisa Matsumoto)**

*"Environmentally friendly way of cleaning heavy metal containing sulfuric acid waste"*

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**34. Jodie DeVries, Calvin College** **Biology**

**(Co-Authors: Mark Schotanus, Prof. Loren Haarsma, Prof. John Ubels)**

*"FAS, FADD siRNA knockdown does not prevent UVB activated K+ currents through Kv3.4 in corneal epithelial cells"*

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**35. Jonathan Knott & David Postma, Calvin College** **Biology**

**(Co-Authors: Dr. Randy Van Dragt)**

*"Forty Years of Forest Development in the Calvin College Ecosystem Preserve"*

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**36. Megan Munger, Albion College** **Biology**

**(Co-Authors: Luke Ragon, Roudeland Metellus, Brandy Mullen, Shaylyn Pritchard, Josh Welsch, Dr. Aaron Best*, and Dr. Michael Pikaart*)**

*"Fun in the Sun with Escherichia coli: Environmental Adaptation and Viability"*

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**37. Abby Stapleton, Calvin College** **Biology**

**(Co-Authors: Randall J. DeJong, John T. Wertz)**

*"Genomic Characterization of Jumbo Bacteriophage Shaista"*

---

**38. Stacy Hooker, Monica Langeland & Dorthea Leisman, Calvin College** **Biology**

**(Co-Authors: Dr. Keith Grasman)**

*"Great Lakes Restoration Initiative: Reassessment of Wildlife Reproduction and Health Impairments in the Saginaw Bay and River Raisin Areas of Concern and Grand Traverse Bay"*

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**39. Tran Nguyen, Calvin College** **Biology**

*"Identification of Cytokines That Aid Endothelial Cells in HIV Infection of CD4+ Resting T Cells"*

---

**40. Peter Boersma, Calvin College** **Biology**

**(Co-Authors: Peter Boersma, Mark Schotanus, and John Ubels PhD)**

*"Identifying the Role of Fas and FADD in UVB induced K+ efflux"*

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**41. Emily Holloway, Kalamazoo College** **Biology**

**(Co-Authors: Katie Bezold, Louis Muglia, MD, PhD)**

*"Immunohistochemical localization of INF2, a novel preterm birth risk allele, in the placenta"*

**42. Kaitlyn Greiner, Kalamazoo College** **Biology**

**(Co-Authors: Mary K. McCarthy; Megan C. Procario; and Dr. Jason Weinberg, MD)**

*"Immunoproteasome Inhibition Confers Protective Effects in a Murine Model of Adenovirus Myocarditis"*

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**43. Miranda Ulmer, Hope College** **Biology**

**(Co-Authors: Dr. Thomas L. Bultman)**

*"Indirect Relationship Between Herbivores as Mediated through Endophyte-Containing Plants"*

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**44. Brittany Leonard, Hope College** **Biology**

**(Co-Authors: Dr. Thomas Bultman)**

*"Influence of Buchnera on the Detoxification of Fungal-Toxins in Rhopalosiphum Padi"*

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**45. Josiah Valk, Calvin College** **Biology**

**(Co-Authors: Ryan M. Bebej, PhD)**

*"Interpretation of Tail Function in Fossil Cetaceans through Multivariate Analyses of Caudal Vertebrae in Modern Mammals"*

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**46. Erika Steensma, Calvin College** **Biology**

**(Co-Authors: Dr. Daniel Michele)**

*"Mechanically-Activated Nitric Oxide Signaling in Duchenne Muscular Dystrophy"*

---

**47. Sophie Bennett & Heather Taylor, Grand Valley State University** **Biology**

**(Co-Authors: Dr. Alexandra Locher and Dr. Todd Aschenbach)**

*"Modeling the presence of exotic invasive shrubs in West Michigan Forests based on habitat characteristics"*

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**48. Nicholas Arnold, Alma College** **Biology**

**(Co-Authors: Joe Beckmann, Nicholas Arnold)**

*"Modulation of CYP1A1 Induction due to Cigarette Smoke in Bronchial Epithelial Cells"*

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**49. Jamaal Tarpeh, Aquinas College** **Biology**

**(Co-Authors: Kendra Garcia, Emerald Butko, Natasha DelCid, Ph.D. and L. Rob Peters, Ph.D.)**

*"Mutagenesis of Zebrafish (Danio rerio) nod1 and nod2"*

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**50. Kara Smit, Calvin College** **Biology**

**(Co-Authors: Deanna Geelhoed, Kara Smit, Dr. Dave Warners)**

*"Native Habitats in Urban Landscapes: Prince Prairie on Calvin's Campus"*

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**51. Jonathan Lin, Calvin College** **Biology**

**(Co-Authors: John T. Wertz)**

*"Physiological Characterization of Bacteria Belonging to a Novel Genus of Verrucomicrobia from the Guts of Cephalotes Ants"*

**52. Jenai Quan, Calvin College** **Biology**

**(Co-Authors: Dr. Lawrence D. Lemke)**

*"Small-Scale Variability of Metals in an Urban Garden"*

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**53. Cassidy Richard, Calvin College** **Biology**

**(Co-Authors: Randy Van Dragt, Ph.D.)**

*"The Effect of Prairie Burns on Arthropod Communities at Flat Iron Lake, Kent Co., MI"*

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**54. James Hentig, Western Michigan University** **Biology**

**(Co-Authors: Dr. Christine Byrd-Jacobs)**

*"The Olfactory Epithelium in Adult Zebrafish Rapidly Recovers from Chemical Ablation with Zinc Sulfate"*

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**55. Alexander Swain, Hope College** **Biology**

**(Co-Authors: Kyle J. Hill, Donald H. Burke)**

*"Unraveling the Packaging of HIV's Genome"*

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**56. Laura Blohm, Calvin College** **Biomedical Engineering**

**(Co-Authors: Zachery Hernandez, Teresa Tse, Dr. Jose L. Contreras-Vidal)**

*"Understanding the Mirror Neuron System from Freely Behaving Infants via Scalp Electroencephalography"*

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**57. Salma Mumuni, Western Michigan University** **Biomedical Sciences**

**(Co-Authors: Dave Karowe)**

*"Effects of Future Atmospheric Nitrogen Deposition on the Purple Pitcher Plant (Sarracenia purpurea ) Color, Nectar, and Prey Capture"*

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**58. Nick Poirier, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Stephen Prior, Rama Koppisetti, and Steven Van Doren)**

*"Analysis of proMMP-7 Membrane Bilayer Binding Using NMR and Fluorescence Assays"*

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**59. Dorothy Butler, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: A. L. Engerson, D.P. Thomas)**

*"Analyzing the Roles of Rfg1 and Tup1 in the Interactions Between Candida albicans and Other Microbes"*

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**60. Lindsey Lusardi, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Aula Ramo, Lindsey Schroedter, Emma Schroder and Dr. David Linn)**

*"Can a drug for Alzheimer's disease be of benefit in glaucoma? Results from ACh release and cell culture experiments"*

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**61. Sarah Craven, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: S. Craven, E. Popma-Metsaars, D. Lown, Ph.D., R.D., M. Spolum MPH, MPP, D. Taylor Ph.D.)**

*"Characteristics and Fruit and Vegetable Intake of Low-Income YMCA Veggie Van Participants in Grand Rapids and Muskegon, MI"*

**62. Jayson Smith, Central Michigan University** **Biomedical Sciences**

**(Co-Authors: Dr. Anja Mueller)**

*"Characterization of BSA release as a function of polysaccharide hydrogel skin scaffold degradation"*

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**63. Courtney Cave, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Courtney Cave, Dr. Kevin Strychar)**

*"Decline of Benthic Amphipod Diporeia caused by the Invasive Zebra Mussel's associated Pathogens"*

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**64. Alicia Flores, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Chris Reed)**

*"Determination of Palatal Bone Density to Aid in Oral Mini-Implant Surgical Success"*

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**65. Christina Sarkissian, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Douglas Graham)**

*"Genetic analysis reveals pronounced population subdivision in raccoon roundworm in West Michigan"*

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**66. Nicholas Huisingh, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Nick Huisingh, Doug Peterson, Jordan Straight, Darcy Kaufman, Elizabeth King, Sarala Sarah, Merritt Taylor)**

*"Nato3 induces the expression of key DA neuron markers in a regionally and temporally specific manner within the developing CNS"*

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**67. Jack Bontekoe & Veena Janardan, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Dr. Francis Sylvester)**

*"Physical Endothelial Denudation Techniques of Porcine Mesenteric Arteries"*

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**68. Merritt Taylor, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Daniel Doyle, Steven Durham, Kristy Rieger, Kasey McKay, Derek Haas, Joshua Lee, Merritt Taylor)**

*"Role of docosahexanoic acid (DHA) and other Polyunsaturated Fatty Acids on Neural Stem Cell Differentiation in the developing embry"*

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**69. Adam McMillan, Grand Valley State University** **Biomedical Sciences**

**(Co-Authors: Jianshuang Li, Dr. Tao Yang)**

*"Sclt1: A Key Gene in Ciliogenesis"*

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**70. Brandy Lancewicz, Alma College** **Biotechnology**

**(Co-Authors: Mario Soliman, Srini Charyulu, Cameron Danesh-Pajou, Anya Held, Dan Mun, Aabha Vora, Shobha Potlakayala, Theresa Swenson, Sairam Rudrabhatla)**

*"Biochemical Analysis of Camelina sativa Under Abiotic Stress"*

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**71. Rebecca Muriset, Ferris State University** **Biotechnology**

**(Co-Authors: Dr. Anne M Spain)**

*"Characterization of Growth and Surface Motility in Soil Isolates Paenibacillus sp., strains A1 and A3"*

**72. Nate Buteyn, Calvin College** **Biotechnology**

**(Co-Authors: Ye In Oh, Herb Fynewever, David Koetje)**

*"Comprehensive Analysis and Outline of Two Introductory Biology Lab Courses"*

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**73. Calvin VanOpstall, Calvin College** **Biotechnology**

**(Co-Authors: Dr. Eric Arnoys, Dr. Larry Louters, Dr. Brendan Looyenga)**

*"Development of Flexible Linker for Validation of NanoLuciferase and mCherry BRET Assays"*

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**74. Emalee Ousley, Alma College** **Biotechnology**

**(Co-Authors: Advised by: Dr. Brian Doyle)**

*"Screening of Mid-Michigan Plants for Antioxidant Activity in the DPPH Assay"*

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**75. Katie Uhl, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Basma Khudhur, Dr. Robert Smart, Dr. William Schroeder, and Dr. Suganthi Sridhar)**

*"Biological Testing of Novel Telomerase Inhibitors"*

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**76. Wessel van den Bergh, Hope College** **Cell and Molecular Biology**

**(Co-Authors: Gloria Chang, Andrew Neevel, Virginia M. McDonough and Joseph Stukey)**

*"Discovery and functional investigation of cytotoxic mycobacteriophage genes"*

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**77. Ronald Kamgang, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Dr. Margaret Dietrich)**

*"Assessment of polar growth of a Physcomitrella patens insertional mutant"*

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**78. Alexander Fisch, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: William Schroeder; Robert Smart; Osman V Patel)**

*"Comparison of nucleoside (AZT) and non-nucleoside (BIBR 1532) reverse-transcriptase inhibitors on triple negative breast cancer cells"*

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**79. Chelsea Reiber, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Alexander J. Fisch1, Robert Smart2, William Schroeder2, Osman V Patel1)**

*"Comparison of single versus combined therapy on aggressive breast cancer cells"*

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**80. Claire Schaar, Hope College** **Cell and Molecular Biology**

**(Co-Authors: Jeremy Van Raamsdonk)**

*"Defining the mechanisms underlying extended longevity in C. elegans mitochondrial mutants"*

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**81. Timothy Gilbert, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Eric Moore, and Dawn M. Clifford Hart)**

*"Detection of Novel Associations Between Cell Cycle Proteins Mid1 & Dis2 in the Fission Yeast Schizosaccharomyces pombe"*

**82. Leslie Wyman, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Josh M. Mitchell, Rachel A. Powers)**

*"Discovery of Lead-like Inhibitors of OXA-1 β-lactamase"*

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**83. Paul Francoeur, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Agnieszka Szarecka)**

*"Dynamics of Conformational Transition in the Beta-Lactam Receptor Sensor Domain"*

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**84. Zachary DeBruine, Hope College** **Cell and Molecular Biology**

**(Co-Authors: Dr. Maria Burnatowska-Hledin)**

*"Endothelial Cell Growth In Vitro Regulated By Resveratrol is Dependent on VACM-1/CUL5 and NEDD8 Colocalization"*

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**85. Gabrielle Foxa, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Gabrielle Foxa, Patrick Schneider, Ashley DeWitt, Dawn M. Clifford Hart)**

*"Establishing the importin protein Imp1 as significant nuclear transporter of Mid1 and its subsequent effects on cell division in the fission yeast"*

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**86. Bill Thompson, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: William Thompson 1, Derrick Kroodsma 1, Aik Choon Tan 2, Stephen K. Obaro 3, Sok Kean Khoo 1)**

*"Gene Expression and Pathway Analysis of Host Response in Children with Typhoid Fever Infection"*

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**87. Veena Janardan & Justin Shady, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Shambhavi Singh, Dr. Suganthi Sridhar)**

*"Identifying the c-MET Phosphorylation Site Regulated by CD82 in Prostate Tumor Cells"*

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**88. Elliot Ensink, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Dave Cherba, Huiyuan Tang, Brian Haab)**

*"Microarray Processing System: A novel thresholding algorithm for automated image analysis"*

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**89. Barrett Kyle, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: Dr. Mark Staves)**

*"Quantification of light and gravity effects on the giant internodal cells of Chara"*

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**90. Dallas Rohraff, Grand Valley State University** **Cell and Molecular Biology**

**(Co-Authors: William Schroeder, Robert Smart, Roderick Morgan)**

*"The Evaluation of Essential Oils as Antibiotics"*

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**91. Kimberly DeGlopper, Hope College & Megan Kwiatkowski, University of Michigan** **Chemistry**

**(Co-Authors: Jeffrey B. Johnson)**

*"Promoting Catalysis and Expanding the Scope of Organometallic Nucleophiles Utilized in the Nickel-Mediated Decarbonylative Cross-Coupling of Substituted Phthalimides"*

**92. Allison Fields, Alma College** **Chemistry**

**(Co-Authors: Dr. Jeff A. Turk, Allison E. Fields)**

*"Buchwald-Hartwig Reactions on Solid Support"*

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**93. Joy Christopher & Brian Heidmann, Calvin College** **Chemistry**

**(Co-Authors: Dr. Carolyn Anderson)**

*"Efforts Towards the Synthesis of β- and γ-Amino Acids Containing N-Alkyl Pyridones"*

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**94. Andrea Bootsma, Calvin College** **Chemistry**

**(Co-Authors: Dr. Carolyn Anderson)**

*"Exploration into Rotationally Restricted N-Alkyl 2-Quinolones"*

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**95. Heidi Conrad & Talon Kosak, Grand Valley State University** **Chemistry**

**(Co-Authors: Dr. Richard Lord, Dr. Andrew Korich)**

*"How Does BBr3 Cyclize o-Akynylanisoles to Form Benzofurans"*

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**96. Alyssa Kulesza & Erin Leach, Grand Valley State University** **Chemistry**

**(Co-Authors: Shannon M. Biros)**

*"Investigation of the Placement and Modification of Aromatic Groups for Sensitizing Lanthanide Luminescence"*

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**97. Joseph Dennis, Hope College** **Chemistry**

**(Co-Authors: Zachary G. Brill, Yu-Ming Zhao, and Thomas J. Maimone*)**

*"Investigations into the Ring-Opening and Functionalization of Cyclopropyl Amines"*

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**98. Connor Reidy, Calvin College** **Chemistry**

**(Co-Authors: Dr. Carolyn Anderson)**

*"Microwave Assisted Gold(I)-Catalyzed Rearrangement of N-Propargyloxypyridines"*

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**99. Nick Pierce, Aquinas College** **Chemistry**

**(Co-Authors: Dr. Timothy Henshaw)**

*"Mutagenesis of Bordetella pertussis"*

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**100. Kyle Disselkoen, Calvin College** **Chemistry**

**(Co-Authors: Dr. Mark Muyskens)**

*"Quantum Yield and Rate Constants for H/TFAA"*

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**101. Catherine Duke, Grand Valley State University** **Chemistry**

**(Co-Authors: William R. Winchester)**

*"Synthesis and Investigation of Sila-allyl Anions"*

**102. Sean Sullivan, Alma College** **Chemistry**

**(Co-Authors: Sean Sullivan, Sienna Pieprzyk, Jeffrey Turk)**

*"Synthesis of Group-1 Neuraminidase Inhibitors"*

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**103. Alan Lear & Andrew VanderWeide, Grand Valley State University** **Chemistry**

**(Co-Authors: Shannon M Biros)**

*"Synthesis, characterization and extraction studies of CMPO analogs for nuclear waste remediation"*

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**104. Brian Rawls, Grand Valley State University** **Chemistry**

**(Co-Authors: Jeremy Cunningham, Paul Morse, Dr. Shannon Biros)**

*"The Change in Extraction Efficiency with the Variation of Electron Donor Atoms in Bidentate Ligands"*

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**105. Niecia Flikweert, Calvin College** **Chemistry**

**(Co-Authors: Abbegail Bell, Dr. Micheal Barbachyn)**

*"The Iodocyclocarbamation Reaction of N-Arylcarbamates: Scope and Limitation"*

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**106. Jared Weidman, Calvin College** **Chemistry**

**(Co-Authors: Roger L. DeKock)**

*"Theoretical Interpretation of Atomic and Ionic Size"*

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**107. Rebekah Newman, Grand Valley State University** **Computational Biology / Bioinformatics**

**(Co-Authors: Agnieszka Szarecka, Suganthi Sridhar, Robert Smart, William Schroeder)**

*"Towards Understanding the Mechanism of Non-Competitive Inhibition of Telomerase"*

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**108. Patrick Crain, Calvin College** **Computer Science**

**(Co-Authors: Patrick Crain, Professor Joel Adams)**

*"Open Source Continuum Crowds on the CPU & GPU"*

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**109. Mark Vander Stel, Calvin College** **Computer Science**

**(Co-Authors: Patrick Crain, Joel Adams)**

*"TSGL: A Thread-Safe Graphics Library for Creating Multithreaded Visualizations"*

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**110. Breanna Gould, Grand Valley State University** **Ecology and Evolution**

**(Co-Authors: Jennifer A. Moore)**

*"Fine-scale spatial genetic structure in Eastern box turtles (Terrapene carolina carolina)"*

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**111. James Jensen, Grand Rapids Community College** **Ecology and Evolution**

**(Co-Authors: Dr. Pam Laureto – GRCC Professor)**

*"Ordination and Classification of Mesic Hardwood Forests at Pierce Cedar Creek Institute, Barry County, Michigan"*

**112. Isaac Zylstra, Calvin College** **Economics**

**(Co-Authors: Student Andrew Hayes, Professor John Ferdinands)**

*"Sets of Selective Sums of Infinite Series"*

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**113. Nathan Terschak, Calvin College** **Engineering**

**(Co-Authors: Yoon G. Kim)**

*"Developing Solar Simulator Modules Based on High Power LEDs"*

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**114. Carl Cooper, Calvin College** **Engineering**

*"Development of Wireless Monitoring Systems and Smartphone Apps"*

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**115. Jeremiah Rocha, Calvin College** **Engineering**

**(Co-Authors: Julie Swierenga, Prof. David Wunder)**

*"Impact of Antibiotics on Denitrifying Biofilm Bacteria"*

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**116. Hezkiel Nanda, Calvin College** **Engineering**

**(Co-Authors: Ayooluwa Ayoola, April Si)**

*"Magnetic Focusing"*

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**117. Chloe Chapman, Ferris State University** **Forensic Biology**

**(Co-Authors: Bridget Lorenz Lemberg, Piyadarsha Amaratunga)**

*"Screening of Nicotine in Oral Fluid ELISA Assay"*

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**118. Brian Hilbrands & Audrey Hughey, Calvin College** **Geography**

**(Co-Authors: Dr. Johnathan Bascom)**

*"A Digital Atlas for Ethiopia: "A Contemporary Geography of Ethiopia""*

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**120. Kyle Jansens, Aquinas College** **Mathematics**

**(Co-Authors: Dr. Michael Mcdaniel)**

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**121. Krystin Dreyer, Aquinas College** **Mathematics**

**(Co-Authors: Joseph Fox)**

*"The Mathematics of Citation Networks: Analyzing the Spread of Influence"*

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**122. Clare Laut, Michigan State University** **Microbiology**

**(Co-Authors: Robert Parker, Joshua Herr, and Shannon D. Manning)**

*"Acidic Exposure and Enhanced Colonization in Group B Streptococcus"*

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**123. Alana Beamish, Sean Justice, Jason Peet, Lansing Community College** **Molecular Biotechnology**

**(Co-Authors: Erika Christian, Kacie Henrys, Molly Pouch, George Van Norman, Melinda Wilson)**

*"DNA Barcoding analysis of Mahi-Mahi: A Fish by any other name?"*

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**124. K. Henrys, M. Pouch, G. Van Norman, Lansing Community College** **Molecular Biotechnology**

**(Co-Authors: Alana Beamish, Erika Christian, Sean Justice, Jason Peet, Melinda Wilson)**

*"DNA Barcoding Analysis of Meat and Poultry: What's for dinner?"*

**125. Erika J. Christian, Lansing Community College** **Molecular Biotechnology**

**(Co-Authors: Alana Beamish, Kacie Henrys, Sean Justice, Jason Peet, Moll Pouch, George Van Norman, Melinda Wilson)**

*"DNA Barcoding Analysis of Tea Ingredients: What's in that Cup?"*

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**126. Tibin John, Kalamazoo College** **Neuroscience**

**(Co-Authors: Tibin John, Tamás Kiss, Zoltán Somogyvári, Laszlo Zalanyi, Péter Érdi)**

*"Cell and Network Level Changes Related to Overproduction of Alzheimer's Amyloid-β Cause Altered Synchronized Activity in Model of Hippocampal Theta Rhythm Generation"*

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**127. Delia Chapa, Grand Valley State University** **Neuroscience**

**(Co-Authors: Glenn Valdez Ph.D.)**

*"Kappa Opioid Regulation of Acute and Protracted Alcohol Withdrawal"*

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**128. Jacqueline Tieu, Ferris State University** **Neuroscience**

**(Co-Authors: M.Beth Zimmer)**

*"The Effect of Spinal Cord Injury on Learning and Memory in Rats"*

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**129. Mason Molesky, Alma College** **Physics**

**(Co-Authors: M. C. Rausch, A. S. Hussey, H. M. Valente, S. J. Jack, and M. M. Strait)**

*"Asteroid Impact Variable Speed Detector Simulation"*

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**130. Andrew Johnson, Hope College** **Physics**

**(Co-Authors: Joshua Veazey, Ryan Cottier, Nikoleta Theodoropoulou)**

*"Ferroelectric and Conductance Characterization of SrTiO3 on Silicon"*

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**131. Danielle Harris, Grand Valley State University** **Physics**

**(Co-Authors: K. J. Kihlstrom, W. K. Kwok)**

*"Increasing Critical Current of Iron-based Superconductors Through Compound Defects"*

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**132. Sean Hamilton, Grand Valley State University** **Physics**

**(Co-Authors: Dr. Stephen Remillard)**

*"Second and Third Order Intermodulation Distortion in Superconducting Passive Circuits"*

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**133. Jonathan Shomsky, Calvin College** **Physics**

**(Co-Authors: Prof. Matt Walhout)**

*"Trapping Krypton and Argon Atoms With Laser Beams"*

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**134. Michael Bischak, Hope College** **Physics**

**(Co-Authors: S.K. Remillard)**

*"Two Dimensional Intermodulation Distortion Scanning of Superconducting Filter Resonators"*

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**135. Lauren Merz, Calvin College** **Pre-Medicine**

**(Co-Authors: Daniel E. Michele, Ph.D)**

*"Post-Exercise Fatigue in Duchenne Muscular Dystrophy"*

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**136. Aaron Zebolsky, Ferris State University** **Pre-Medicine**

**(Co-Authors: Dr. James Hoerter)**

*"Use of a Notch Pathway Inhibitor to Maximize UVA Damage to Melanocyte Stem Cells"*

**137. Isaac Simon, Grand Valley State University** **Psychology**

**(Co-Authors: John K. Hessler, Michael B. Wolfe, Todd J. Williams, Marisa Simoni)**

*"I can't remember: The effects of lying and Machiavellianism on people's ability to recall past events"*