# Ph.D. Students Graduated

| II.D. Students C       | Jauualtu                               |  |  |
|------------------------|--|--|--|
| Name                   | Work Period                            | Thesis Title   | Placement  |
| -Nils Rohbohm          | Febr. 19-Jun. 24                       | Investigation of crbon capture technology -  | -Post-doc,   |
|                        |  | Optimization of microbial electrochemical cells: A   | Spormann/Angenent Lab at                             |
|                        |  | study on single-chamber, flow cell, and zero-gap   | CORC at Aarhus University,                           |
| -Ulrike Biehain (with  | Dec. 19-Jun. 24                        | reactor configurations.<br>Human gut microbes under power – Development of a                             | Denmark.<br>-Post-doc, Ley Lab, MPI                  |
| Ruth Ley)              | Dec. 19-Juli. 24                       | bioelectrochemical system to uncouple and interrogate  | biology in Tübingen.                                 |
| Ruth Ley)              |  | $H_2$ -syntrophic partners in the human gut. Microbiota.   | biology in rubingen.                                 |
| -Han (Angelia) Wang    | Oct. 18-Sept. 23                       | Anaerobic fermentation with ethanol and lactate as co-   | -Research Insititute in China                        |
|                        | •••••••••••••••••••••••••••••••••••••• | electron donors for medium-chain carboxylic acid   |  |
|                        |  | production   |  |
| -Isabella Casini (with | Sept. 17-Oct. 22                       | Systems biology for power-to-gas applications with   | Post-doc Prof. Ralf Takors                           |
| Bastian Molitor)       |  | Methanothermobacter spp.   | Group at Stuttgart University                        |
| -Sarah Schulz (with    | Jan. 19-Oct 22                         | Tailoring Clostridium ljungdahlii for improved ethanol   | Projektmanagerin Scientific                          |
| Bastian Molitor)       |  | production by genetic engineering of the   | Integration, RWTH Aachen                             |
|                        |  | aldehyde:ferredoxin oxidoreductase (AOR) and   | University   |
| -Akanksha Sharma       | March 17-Jan. 22                       | chemostat fermentation<br>Establishment and optimization of a power-to-food                              | Course in Bioinformatics                             |
| -AKaliksha Sharma      | Watch 17-Jan. 22                       | system to produce single cell protein containing   | Course in Bioinformatics                             |
|                        |  | cobalamin and folate   |  |
| -Christian-Marco       | June 17-Nov. 21                        | Interrogating the energy conservation of   | Lab team leader Fermentation                         |
| Klask (with Bastian    |  | <i>Clostridium ljungdahlii</i> by genetic manipulation   | at BASF, Ludwigshafen                                |
| Molitor)               |  | and bench-scale fermentation   |  |
| -Christian Fink (with  | July 17-Oct. 21                        | Establishment of tools for genetic modification of the   | Head of the Molecular                                |
| Dr. Bastian Molitor)   |  | thermophilic methanogenic archaeon   | Biology and Bioinformatics                           |
|                        |  | Methanothermobacter themoautotrophicus $\Delta H$  | Unit at Arkeon                                       |
| -Lauren Harroff        | Aug 14 Aug 10                          | Using shain alongation of carbowylic aside to  | Biotechnologies<br>Managing Director, Feed the       |
| Trondsen               | Aug. 14-Aug. 19                        | Using chain elongation of carboxylic acids to inactivate <i>Ascaris</i> eggs and provide new methods for | Future Innovation Lab for                            |
| TTOHUSEI               |  | sanitation waste treatment   | Food Safety (FSIL)                                   |
| -Juan Guzman           | Aug. 12-Dec. 17                        | Towards developing a novel community-selection tool  | CEO, Capro-X, Inc. a start-up                        |
| Vuun Ouzinun           | 114gi 12 2001 17                       | to unravel the interaction of hydrogen-producing   | company in Upstate New                               |
|                        |  | syntrophs  | York, Ithaca.  |
| -Catherine Spirito     | Jan. 11-Aug. 17                        | Using high-throughput gene surveys to investigate the  | Assistant Clinical Professor at                      |
|                        |  | stability of anaerobic digestion and fermentation  | University of Maryland                               |
|                        |  | processes  | College Park   |
| -Joseph Usack          | June 10-Aug. 16                        | An evaluation of the barriers to anaerobic digestion   | Assistant Professor,                                 |
|                        |  | technology implementation for energy production and  | University of Georgia, Athens                        |
| -Devin Doud            | Aug. 10-Aug. 14                        | waste stabilization on dairy farms<br>Engineering applications using the innate redox                    | Associate Director at Senda                          |
| Devin Doud             | Mug. 10 Mug. 14                        | environment of <i>Rhodopsuedomonas palustris</i>   | Biosciences, Cambridge,                              |
|                        |  |  | Massachusetts  |
| -Michaela TerAvest     | Aug. 09-Aug. 13                        | Biological limitations of Shewanella oneidensis MR-1   | Associate Professor at                               |
|                        | 0 0                                    | in bioelectrochemical systems  | Michigan State University,                           |
|                        |  |  | East Lansing, MI                                     |
| -Elliot Friedman       | Jun. 09-Aug. 13                        | Microbial electrochemical systems as tools to study  | Director for Data Integration;                       |
|                        |  | subsurface biogeochemical processes  | Penn Center for Nutritional                          |
|                        |  |  | Science & Medicine at<br>University of Pennsylvania, |
|                        |  |  | Philadelphia, PA                                     |
| -Arvind                | May 08-Nov. 11                         | The role of intraspecies and interspecies  | Senior Scientist at P&G,                             |
| Venkataraman           | , 1.011                                | communication of <i>Pseudomonas aeruginosa</i> PA14  | Cincinnati, Ohio                                     |
|                        |  | towards phenazine and production and virulence   |  |
| -Matt Agler            | Jun. 06-Aug. 11                        | Improving performance and product specificity of the   | Assistant Professor,                                 |
| ·                      | -                                      | carboxylate platform for production of biochemicals  | University of Jena, Germany                          |
| -Jeff Fornero          | Aug. 06-Aug. 09                        | Improving the cathode conditions by pressurizing and   | VP of Engineering of                                 |
|                        |  | carbon dioxide addition to enhance the practicality of   | Electrochaea, LLC a start-up                         |
|                        |  | MFC treatment of wastewater  | company in Missouri, and                             |
|                        |  |  | then VP of engineering at                            |
| -Sarah Dryden          | Aug. 04-Jan. 09                        | 16S rRNA gene surveys to quantify pathogens in   | GlucanBio, LLC<br>Post-Doc, Battelle,                |
| Perkins                | Aug. 04-Jall. 09                       | environmental bioaerosols  | Indianapolis, IN                                     |
| -Marcelo Garcia        | Jan. 04-Dec. 08                        | Improving the stability of anaerobic digesters for   | Associate Professor, State                           |
|                        |  | animal waste treatment   | University of Sao Paulo, Rio                         |
|                        |  |  | Claro, Brazil  |
|                        |  |  |  |

Ful Professor at Washington University in St. Louis

## M.S. Students Graduated with Thesis

| <i>Name</i><br>-Manishkumar                                   | <i>Work Period</i><br>Feb. 23-Jul. 23 | <i>Thesis Title</i><br>Mass balance-based model of the two-stage power-to-   | Origin/Placement<br>AEG/NA   |
|---|---------------------------------------|--|--|
| Ghodadara (with<br>Andrés Ortiz)                              |                                       | protein system in Aspen  |  |
| -Beyza Kercin (with<br>Sylvia Lempke)                         | Nov. 22-May 23                        | Investigating $\psi$ M2 and <i>Methanothermobacter</i> marburgensis as a model system for methanogen viruses   | Biology/Technician at the<br>Max Planck Institute Biology<br>in Tübingen |
| -Franziska Küchle<br>(with Julia<br>Schumacher)               | Nov. 22-May 23                        | Investigation of the nitrogen-fixation metabolism in Methanothermobacter thermautotrophicus $\Delta H$   | Biology/Ph.D student in<br>Molitor Lab at the University<br>of Leipzig   |
| -Pius Stuchtey (with<br>Dr. Lisa-Marie<br>Schmitz)            | Feb. 23-Apr. 24                       | Investigating continuous butanol production from<br>methanol by using <i>Eubacterium limosum</i> as a<br>biocatalyst   | Geosciences/NA   |
| -Samuel Farmer<br>(with Lucas<br>Mühling)                     | Jan. 23-Febr. 24                      | An electroporation technique in <i>Methanothermobacter</i><br>thermautotrophicus $\Delta H$ – Optimization and application   | AEG/PhD student in our group with Bastian Molitor                        |
| -Michael Buchner<br>(with Dr. Joe Usack<br>and Prof. Zarfl)   | Jan. 23-Dec. 23                       | Assessment of spatial demand and protein yield of a power-to-protein system in Ethiopia  | GeoEcology/NA  |
| -Olywatoyin Khadijat<br>Alli (with Dr.<br>Rodolfo Briones)    | Nov. 22-Oct. 23                       | Production of medium chain carboxylic acids<br>(MCCAs) using pure cultures, co-cultures, and defined<br>mixed cultures: Conversion of lignocellulose-derived<br>sugars into <i>n</i> -caproic acid                                     | AEG/Bioinformatic studies i<br>Denver, Colorado                          |
| -Xuejiao (Julie) Lyu<br>(with Mei Zhou)                       | Nov. 22-Sept. 23                      | The toxicity of hydrothermal liquefaction (HTL)<br>process water to anaerobic digestion and prediction of<br>anaerobic digestion performance with biochemical<br>methane potential assays (BMP) and anaerobic toxicity<br>assays (ATA) | AEG/Ph.D. student at the Johns Hopkins University                        |
| -Adrien Biguenet<br>(with Dr. Rodolfo<br>Briones)             | Oct. 22-Aug. 23                       | Glycogen production from an acetate-rich medium<br>with cycling aerobic/anaerobic microbes   | AEG/NA   |
| -Dorothea Schütterle<br>(with Dr. Richard<br>Hegner)          | Sept. 21-Febr. 21                     | Steering of open-culture biotechnology-based acid<br>whey conversion into D- or L-lactate isomers by<br>controlling temperature and pH   | Molecular Medicine, PhD at<br>Jena University                            |
| -Sylvia Lempke<br>(with Dr. Bastian<br>Molitor)               | April. 20-Oct. 21                     | Investigations of genetic manipulation and virus isolation strategies for <i>Methanobrevibacter smithii</i>  | Biology/Ph.D. in our group   |
| -Laura Gerlach (with<br>Dr. Sebastian<br>Beblawy)             | Sept. 20-Jul. 21                      | In-vivo transposon mutagenesis of the thermophilic archaeon Methanothermobacter thermautotrophicus   | Biology/NA   |
| -Kurt Gemeinhardt<br>(with Dr. Tian Sun)<br>-Andrada-victoria | Jun. 20-Mar. 21<br>Apr. 20- Mar. 21   | Impedance measurements and process optimization in<br>an electrochemical cell designed for biomethanation<br>Techno-economic analysis of resource receivery at the   | Geo-Ecology/Ph.D. in our<br>group<br>EHS&S Specialist for the            |
| Oancea (with Joe<br>Usack)                                    |                                       | wastewater treatment plant from sludge treatment   | Bavaria Medizin Technologi<br>(BMT)                                      |
| -Caroline Schlaiß<br>(with Dr. Pengfei<br>Xia)                | Apr. 20- Mar. 21                      | Establishing a base-editing tool in <i>Clostridium ljungdahlii</i> based on CRISPR/Cas12a  | Geo-Ecology/ Ph.D. in our group  |
| -Luyao (Luna) Li<br>(with Dr. Joe Usack)                      | Feb. 20- Mar. 21                      | Life-cycle assessment of chain elongation  | AEG/NA   |
| -Ahmed Alhassan<br>Kinbokun (with Dr.<br>Richard Hegner)      | Feb. 20- Mar. 21                      | Extracting bio-oils from fermentation broths   | AEG/NA   |
| -Cong Nguyen (with<br>Dr. Byoung Seung<br>Jeon)               | Feb. 20-Sep 20                        | Chain elongation with real organic wastes  | AEG/NA   |
| -Monika Temovska<br>(with Sofia Esquivel)                     | Jan. 19-Sept. 19                      | Isolating chain-elongating bacteria  | AEG/Ph.D. in our group   |
| -Qu Sun (with Joe<br>Usack)                                   | Jan. 19-Juni 19                       | Chain Elongation from formate with open cultures   | AEG/Engineering company in China   |
| -Stefan Petschak<br>(with Bastian                             | July 18-Jan. 19                       | Homologous and heterologous overproduction of AOR-Enzymes in <i>Clostridium ljungdahlii</i> and  | Biochem/Two-month internship in our group                                |

| -Sarah Schulz (with<br>Bastian Molitor)                          | Nov. 17-Sept. 18 | Engineering the metabolism of <i>Clostridium ljungdahlii</i><br>by altering the availability of the Aldehyde:Ferredoxin<br>Oxidoreductase (AOR), a key enzyme in ethanol<br>formation during syngas fermentation | Extern/Ph.D. in our group  |
|--|------------------|--|--|
| -Mytien Nguyen   | Aug. 14-Aug. 16  | Beyond energy saving: the effect of weatherization on<br>the microbiology of the residential built environment in<br>Upstate New York  | BEE, MD-Ph.D. program,<br>Yale University                            |
| -Sarah Daly  | Aug. 14-Aug. 16  | Acidification of food waste during storage after grinding with InSinkErator® technology  | BEE, Ph.D. student, Purdue<br>University                             |
| -Leo Kucek   | Aug. 13-Sept. 15 | Extending chain elongation with reactor microbiomes  | Extern / Applied Technologies (ATI), Wisconsin, USA                  |
| -Ahmet Erkan Uman  | Aug. 12-March 15 | A Fenton reaction in the recirculated biosolids line of an anaerobic digestion system  | Extern/Ph.D. student,<br>University of Southern<br>Florida           |
| -Michael Martin  | Aug. 12-July 14  | Comparing ethanol production of carboxydotrophic<br><i>Clostridium</i> strains during syngas fermentation with a<br>two-stage continuous culture   | Biology/Scientist, LanzaTech,<br>Chicago, IL                         |
| -José Miguel Perez   | Aug. 09-June 12  | Reduction of carboxylic acids to alcohols using syngas<br>and <i>Clostridium ljungdahlii</i> as biocatalysts   | Extern/Ph.D. student at<br>University of Madison-<br>Wisconsin, WI   |
| -Eric Kettleson  | Aug. 03-Aug. 05  | Capture and inactivation of virus aerosol using electrostatic precipitation  | Extern/Ph.D. candidate,<br>Washington University in St.<br>Louis, MO |
| -Rebecca Hoffmann<br>(co-advised with<br>Muthanna Al-<br>Dahhan) | May 03-May 05    | The effect of shear on the performance and microbial<br>ecology of anaerobic digesters treating cow manure<br>from dairy farms   | ChemE/Horner & Shifrin,<br>Inc. Engineers, St. Louis, MO             |
| -Dan Rauer (co-<br>advised with Jay<br>Turner)                   | Jan. 03-Febr. 05 | Characterization and monitoring of ambient biological $PM_{2.5}$ at the St. Louis-Midwest Supersite  | ChemE/Lab Technician,<br>Bayer Corporation USA,<br>Berkeley, CA      |

## M.S. Students Graduated with Project Report or Biochemistry Rotation

| <i>Name</i><br>Niklas Nathusius                              | <i>Work Period</i><br>Oct. 23-Mar. 24 | <i>Report Title</i><br>Genetic modification of <i>C. ljungdahlii</i>                                      | <i>Placement</i><br>Microbiology                         |
|--|---------------------------------------|---|--|
| -Alina Gante (with<br>Sylvia Lempke)                         | Apr. 23-May 23                        | Gut methanogens and their phages  | Biochemistry   |
| -Sebastian Kalkuhl<br>(with Dr. Kim<br>Rennhack)             | Jan. 22-Febr. 22                      | Expressing ferredoxin   | Biochemistry MS Program continuation                     |
| -Elias Schermuly<br>(with Lucas<br>Mühling)                  | Nov. 21-Dec. 21                       | Improving the genetic system of <i>Methanothermobacter</i><br>thermoautotrophicus                         | Biochemistry MS Program continuation                     |
| -Dorothea Schütterle<br>(with Dr. Richard<br>Hegner)         | Feb. 21-March 21                      | Acid whey to <i>n</i> -caproate conversion with bioreactors   | Molecular Medicine, continuation                         |
| -Melanie Brauny<br>(with Dr. Sebastian<br>Beblawy)           | Jan. 21-Feb. 21                       | Viruses of methanogens  | Molecular Medicine, continuation                         |
| -Marco Ernst (with<br>Christian Fink and<br>Christian Klask) | Sept. 20-Mar. 21                      | Genetic modification of a thermophilic Archaeon and genetic modification of a carboxidotrophic bacterium. | Biochemistry MS Program continuation                     |
| -Christoph Oberist<br>(with Sarah Schulz)                    | Sept. 20-Nov. 20                      | AOR biochemistry  | Biochemistry MS Program continuation                     |
| -Daria Evseeva (co-<br>advised with Dr.<br>Daniel Huson)     | June 18-Aug. 20                       | PacBio sequencing of Methanothermobacter thermoautotrophicus  | Ph.D., Max Planck Institute<br>for Developmental Biology |
| -Erik Rasmussen<br>(MEng)                                    | Sept. 14-May 15                       | Bioprocessing with Clostridium ljungdahlii  | Cornerstone Research, New York, NY                       |
| -Siddarth<br>Govindarajan<br>(MEng)                          | Sept. 13-May 14                       | Weatherization bioaerosol study   | Advanced Equipment<br>Engineer, GlobalFoundries<br>Fab 8 |
| -Divya Vasudevan<br>(MEng)                                   | Aug. 12-May 13                        | Chain elongation in upflow filters with undiluted acetate and ethanol                                     | Engineer I, Genentech Inc.                               |
| -Matthew Williams (MEng)                                     | Aug. 12-May 13                        | Modeling ethanol extraction from syngas fermentation vessels  | Consulting analyst, Accenture                            |
| -Dylan Webster<br>(MEng)                                     | Jan. 13-May 2013                      | Modifying <i>Shewanella oneidensis</i> as a bioensing microbe with electric output                        | Scientist, E. & J. Gallo<br>Winery, CA                   |

| -Christian Pichard<br>(MEng) | Aug. 11-Aug. 12 | Economic analysis and life-cycle assessment of the<br>carboxylate platform                  | Consultant, TetraTech,<br>Santiago, Chili                                  |
|------------------------------|-----------------|---|--|
| -Sarah Clement<br>(MEng)     | Aug. 11-Jul. 12 | Investigating neutral theory in a bacterial community                                       | Consultant, Accenture  |
| -Bob Frost (MEng)            | Aug. 10-May 11  | House-hold digester for kitchen waste   | Consultant, Hazen and<br>Sawyer, New York City, NY                         |
| -Adam Garnica<br>(MPS)       | Aug. 09-May 10  | Toxicity of line lubricants in UASB bioreactor treatment of brewery waste                   | Law School, Cornell<br>University  |
| -Ben Bocher (MS)             | May 05-Dec. 06  | Shear-enhanced anaerobic digestion of secondary biosolids from upflow anaerobic bioreactors | Assistant Professor,<br>University of Wisconson,<br>Platteville, now at BP |

### **B.S. Students Graduated with Thesis**

| <i>Name</i><br>-Tabea Miller   | Work Period<br>Dec. 23-April 24      | <i>Thesis title</i><br>From genes to structures: Cloning of plasmids for tagged<br>Glycine- and Proline-Reductase in <i>Clostridioides difficile</i><br>for structure elucidation                  | Origin/Placement<br>Biochemistry/MS in<br>Biochemistry at the University<br>of Köln                        |
|--|--------------------------------------|--|--|
| -Johanna Krastel<br>(with Hiroki<br>Yoshida)<br>-Verena Wellmann         | Dec. 23-April 24<br>Apr. 23-Sept. 23 | Screening of promising substrates and strains to utilize<br>methyl group compounds as alternative carbon sources<br>for thermophilic acetogens<br>Establishment of an in-vivo reporter system for  | Environmental Science/M.Sc.<br>in Environmental Science at the<br>University of Freiburg<br>Geo-Ecology/NA |
| (with Julia<br>Schuhmacher)  |                                      | Clostridium sporogenes and Clostridium perfringens   |  |
| -Leo von Bank (with Dr. Kim Rennhack)                                    | Apr. 23-July 23                      | Homologous protein production and construction of a vector system for the synthesis of aldehyde:ferredoxin oxireductase isoforms in <i>C. ljungdahlii</i>  | Biochemistry/ M.Sc. student at<br>Tübingen University  |
| -María Rodríguez<br>Sánchez (with<br>Caroline Schlaiß)                   | Jan. 23- Jun. 23                     | Developing a dCas12 Base-editing system for <i>Clostridium ljungdahlii</i>   | University of Barcelona<br>(Erasmus Program), M.Sc. at<br>Wageningen University                            |
| -Hendrik de Veer<br>(with Dr. Kim<br>Rennhack)                           | Nov. 22-May 23                       | Construction of a clostridial vectorsystem<br>for homologous aldehyde:ferredoxin oxidoreductase<br>production in <i>Clostridium ljungdahlii</i>  | Biochenistry   |
| -Raphael Thomas<br>Mayer (with Dr. Jean<br>Nepo Ntihuga)                 | Jan. 23-May 23                       | Effect of <i>n</i> -caprylic acid addition on chain elongation process   | Geosciences  |
| -Tim Render (with<br>Caroline Schlaiß)                                   | Oct. 22-Dec. 22                      | Characterization of a dFnCpf1-guided base-editing system for <i>Clostridium ljungdahlii</i>  | BS Biochemistry  |
| -Elijas Schüz (with<br>Dr. Kim Rennhack)                                 | May 22-Oct. 22                       | Heterologous production of holo-aldehyde ferredoxin<br>oxidoreductase from <i>Clostridium ljungdahlii</i> for<br>enzymatic metabolic studies   | BS Biochemistry  |
| -Ferran Agulló<br>Manobens (with<br>Lucas Mühling)                       | Mar 22-Sep. 22                       | Establishing transposon insertion mutagenesis in $Methanothermobacter thermautotrophicus \Delta H$   | University of Barcelona<br>(Erasmus Program)   |
| -Andrea Benaiges<br>Carne (with Dr. Lisa<br>Schmitz)                     | Nov. 21-Jul. 22                      | Growth behavior and vitamin B9 production of <i>Clostridium ljungdahlii</i> in absence of vitamin B9   | University of Barcelona<br>(Erasmus Program)   |
| -Oskar Geissel (with<br>Lucas Mühling)                                   | Oct. 21-Jul. 22                      | Thermoadaptation of the selectable marker puromycin acetyltransferase in <i>Methanothermobacter</i> thermautotrophicus $\Delta$ H  | BS Biology   |
| -Sebastian<br>Winterhalder (with<br>Dr. Jean Nepo<br>Ntihuga and Dr. Joe | Oct. 21-Mar. 22                      | Converting bread waste into medium chain carboxylic<br>acids via the chain-elongating bioprocess   | BS Geosciences/TBD   |
| Usack)<br>-David Keßler (with<br>Sarah Schulz)                           | Mar. 2021-Oct. 21                    | Production and characterization of holo ferredoxins in <i>Escherichia coli</i> .   | Biology/MS student at the University of Graz, Austria  |
| -Fabienne Kreutter<br>(with Akanksha<br>Mishra)                          | Sept. 20-Mar. 21                     | Power-to-protein   | Biology/HIWI in our group  |
| -Tilman Schramm<br>(with Lucas<br>Mühling)                               | Sept. 20-Mar. 21                     | Genetic modification of a thermophilic methanogen  | Biology/HIWI in our group  |
| -Andreas-Mark<br>Enkerlin (with<br>Chrisitian Fink)                      | Sep. 2019-May<br>2020                | Construction of a modular shuttle vector system and<br>investigation of interdomain conjugation for the genetic<br>manipulation of <i>Methanothermobacter</i><br><i>thermautotrophicus</i> Delta H | Biology/HIWI in our group  |

| -Nicolai Kliem-<br>Kuster (with<br>Christian Klask) | Feb. 2019-Aug. 19 | Anaerobic fermentation of <i>Clostridium Ijungdahlii</i> in a Multi-Bioreactor-System                 | Reutlingen/Technician in our group  |
|---|-------------------|---|-------------------------------------|
| -Michael Buchner<br>(with Patrick<br>Schweizer)     | May 19-Aug. 19    | Production of short- and medium-chain carboxylates<br>using anaerobic fermentation of an open culture | Geosciences/NA                      |
| -Sylvia Lemke (with<br>Christian Klask)             | May 19-Aug. 19    | Synthesis of cyanophycin in Clostridium ljungdahlii   | Biology/HIWI and Ph.D. in our group |
| -Meike Rattay (with Dr. Joe Usack)                  | Sept. 18-Febr. 19 | Medium-chain carboxylic acid production with<br>continuously-fed bakery waste                         | Geosciences/NA                      |
| -Caroline Schlaiß<br>(with Dr. Claudia<br>Tominski) | June 18-Sept. 18  | Isolation of bacteria producing medium chain carboxylic acids at pH 5                                 | Geo-ecology/MS in our group         |

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## Post-Doctoral Researchers/(Senior) Research Associates Supervised

| <i>Name</i><br>-Rodolfo Palomo<br>Briones                              | Work Period<br>Jun. 21-Jan. 24      | <i>Project Title</i><br>Defined mixed cultures for product formation   | <i>Placement</i><br>Marie Curie Postdoctoral<br>Fellow, University of<br>Valladolid, Spain    |
|--|-------------------------------------|--|---|
| -Lisa-Marie Schmitz<br>-Andrés Eduardo<br>Ortiz Ardila                 | Dec. 21-Oct. 23<br>Oct. 21-Sept. 23 | Nutritional value of power-to-protein<br>Microbial ecology of chain elongation   | Jr. Group leader in our group<br>Jr. Group leader in our group                                |
| -Saskia Baur<br>-Gabriela Contreras<br>(with Dr. Bastian<br>Molitor)   | May 22-Feb. 23<br>Aug. 20-Febr. 23  | CO <sub>2</sub> and CO conversions with modified acetogens<br>Genetic modification and bioprocessing of a<br>thermophilic methanogenic Archaeon. | Jr. Group leader in our group.<br>NA  |
| -Richard Hegner<br>-Sebastian Beblawy<br>(with Dr. Bastian<br>Molitor) | April 19-Dec. 22<br>Jan. 19-Feb. 22 | Converting acid whey into alkanes<br>Genetic modification of <i>Methanothermobacter</i><br>thermautotrophicus                                    | Research Engineer, BASF<br>Project Manager for<br>Bioeconomy at<br>Umwelttechnik BW GmbH      |
| -Jose Antonio<br>Magdalena Cadelo<br>(with Dr. Joe Usack)              | June 20-Oct 21                      | Measuring trace gases in biological systems  | Post-doc research associate,<br>INRA, France  |
| -Byoung (John)<br>Seung Jeon   | Sept. 18-Dec. 20                    | The biochemistry of chain elongation   | Independent Groupleader,<br>KICET, South Korea  |
| -Tianran (Tian) Sun  | Oct. 14-Dec. 20                     | Microbial electrochemistry and biochar/minerals in soil  | Assistant Professor, Chinese<br>Academy of Sciences in<br>Beijing.                            |
| -Sofia Esquivel<br>Elizondo (with Dr.<br>Ruth Ley)                     | Apr. 18-Nov. 20                     | Syntrophy of acetogens and methanogens in human guts   | Scientist, Low-Carbon<br>Energy, Environmental<br>Defense Fund                                |
| -Pengfei Xia (with –<br>Dr. Bastian Molitor)                           | Nov. 18-Oct. 20                     | Genetic modifications of Clostridium ljundahlii  | Assistant Professor,<br>Shandong University, China  |
| -Joseph Usack  | Aug. 16-Aug. 19                     | Chain elongation   | Assistant Professor,<br>University of Georgia,<br>Athens, USA                                 |
| -Claudia Tominski  | Jan. 17-Oct. 18                     | Anaerobic microbiology   | Scientist, ÖHMI Analytik,<br>Magdeburg  |
| -Roy Posmanik  | Aug. 14-July 17                     | Coupling hydrothermal systems to digestion with Prof. Jeff Tester  | Principal Investigator,<br>Volcani Institute at The<br>Volcani Center, Israel                 |
| -Jiajie (JJ) Xu  | Sept. 14-June 17                    | Extracting <i>n</i> -caproic acid from fermentation broth  | Assistant Professor, Chinese<br>Academy of Sciences in<br>Beijing.                            |
| -Bastian Molitor   | Jun. 15-May 17                      | Genetic modification of carboxydotrophic bacteria  | Junior Professor,<br>Environmental Biotechnology<br>Group, University of<br>Tübingen, Germany |
| -Hanno Richter   | Nov. 08-June 16                     | Conversions with Clostridium spp.  | Principle Engineer, Corbion,<br>California  |
| -Rodrigo Labatut   | Oct. 14-Oct. 15                     | Biological methane potential test  | Assistant Professor, Pontifical<br>Catholic University of Chile,<br>Santiago, Chile           |
| -Denina Hospodsky  | Jan. 13-May 14                      | A pilot study of the changes in airborne microbiota<br>after weatherization of older two-story homes in the<br>U.S. Northeast                    | Director of Molecular Product<br>Development, Adaptive  |

| -Erik Bland<br>-Jeffrey Werner<br>-Miriam Rosenbaum | Febr. 13-April 14<br>June 09-Aug. 2011<br>March 07-May 11 | Photobioreactors with monochromatic light<br>Stability in upflow anaerobic bioreactors<br>Bioelectrochemical systems | Biotechnologies Corp.,<br>Seattle, WA<br>Industry<br>Professor, SUNY Cortland<br>Professor of Synthetic |
|---|---|--|---|
|   |   |  | Biotechnology at the Hans<br>Knöll Institute, Jena  |
|   |   |  | University, Germany   |
| -Sarah Dryden                                       | Feb. 09-May 09  | Syntrophic acetate oxidation in anaerobic digesters  | Post-Doc, Battelle,   |
| Perkins   |   |  | Indianapolis, IN  |
| -Balathiagaran                                      | April 04-May 05   | Bacteriophages as indicators for human fecal   | Post-doc, University of   |
| Ramaswami   |   | contamination in Table Rock Lake, MO   | Pittsburgh, PA  |

#### Group Leaders (Nachwuchsgruppenleiters) - previously

*Name* -Joseph Usack *Work Period* Aug. 19-Jan. 23 *Title* Dependent group leader

Placement Assistant Professor, University of Georgia, Athens, USA

#### **Technicians**

| Name             | Work Period      | Research Project                                    |
|------------------|------------------|---|
| -Markus Maisch   | Aug. 19-Oct. 19  | Coupling chemostats to MS                           |
| -Sarah Daly      | June 14-Aug. 14  | Food waste hydrolysis and storage                   |
| -Mytien Nguyen   | June 14-Aug. 14  | Weatherization study                                |
| -Lauren Harroff  | Sept. 13-Aug. 14 | Toilet system to kill pathogens                     |
| -Divya Vasudevan | June 13-Feb. 14  | Chain elongation                                    |
| -Nina Voulis     | Feb. 13-Feb. 14  | Photobioreactors                                    |
| -Michael Martin  | Dec. 11-Aug. 12  | Syngas Fermentation                                 |
| -Wendy Hoose     | June 10-April 11 | Genetically-modifying photosynthetic microorganisms |
| -Alex Lee        | Jan. 10-June 10  | Building cheap potentiostats                        |
| -Joe Usack       | Dec. 09-May 10   | Co-digestion of cow manure with lipid-rich wastes   |
| -Nick Scalfone   | Nov. 08-Jun. 09  | 16S rRNA gene surveys and FISH                      |

#### Visiting Scholars and Professors

| Name  | Work Period       | Research Project  | Placement/Current Position   |
|---|-------------------|---|--|
| -Qingyan (Doris)<br>Wang                          | Dec. 23-Nov. 25   | Food waste to <i>n</i> -caproate conversions                      | PhD student, Beijing Forestry<br>University, Beijing, China                |
| -Filip Brodowski                                  | Oct. 23-Dec. 23   | TEA of acid whey conversion into <i>n</i> -caproate               | Post-doc, Poznan University<br>of Technology, Poland                       |
| -Emma Jones                                       | Sept. 23-Mar. 24  | Extraction of <i>n</i> -caproate                                  | PhD student, University of Bologna   |
| -Carlos Bautista<br>(with Dr. Bastian<br>Molitor) | Apr. 23-June23    | Clostridia pathogens  | B.S. student, Universidad de<br>las Américas Puebla<br>(UDLAP)             |
| -Yihua Liu (with Dr.<br>Ruth Ley)                 | March 23-present  | Gas fermentation with Methanobrevibacter smithii                  | Ph.D. student, Max Planck<br>Institute for Biology,<br>Tübingen            |
| -Felipe Filgueiras de<br>Almeida                  | Dec. 22-May 23    | Extracting <i>n</i> -caproate from a chain elongating system      | Ph.D. student, Federal<br>University of Pernambuco,<br>Recife, Brasil      |
| -Joana Madjarov                                   | Mar. 22-Aug. 22   | Microbial electrosynthesis with acetogens                         | TBD  |
| -Prof. Ludmilla<br>Aistilde                       | Jan. 22-June 22   | Metabolomics for biological systems to recover carbon from wastes | Associate Professor,<br>Northwestern University,<br>Chicago, USA           |
| -Laura Rovira Alsina                              | Jan. 21-Jun. 21   | Power-to-gas with a bench-scale biomethanation<br>bioreactor      | Ph.D. student, University of Girona  |
| -Andrés Eduardo<br>Ortiz Ardila                   | Sept. 20-Febr. 21 | Microbial ecology in anaerobic fermenters                         | Ph.D. Student, Pontificia<br>Universidad Católica de Chile                 |
| -Dr. Catherine Spirito                            | Jan. 20           | Metagenomics to study chain elongation                            | Assistant Clinical Professor,<br>Frank Stiftung, University of<br>Maryland |
| -Heather Ailinger                                 | Jan. 20           | Methanothermobacter themautotrophicus cell membranes              | BS student, Frank Stiftung,<br>University of Maryland                      |

| -Spyridon (Spyros)<br>Karakoulak          | Feb. 20-April 20  | OD sensor with cheap smart watch   | BS student, Erasmus<br>Program, Technical   |
|---|-------------------|--|---|
| -Ramiro Blasco<br>Gómez                   | Sept. 18-present  | Ethanol production at biocathodes  | University of Crete, Greece<br>Ph.D. student, University of<br>Girona                                 |
| -Byung-Chul (Roy)<br>Kim                  | Mar. 18-Sept. 18  | Producing caproate from real organic waste                                       | Ph.D. student, Seoul National<br>University   |
| -Jiuxiao Hao                              | Oct. 15-Sept. 16  | Producing <i>n</i> -caproic acid from organic wastes                             | Ph.D. student, Tsinghua<br>University, Beijing, China   |
| -Sylvia Gildemyn                          | Oct. 15-Feb. 16   | Producing <i>n</i> -caproic acid from syngas fermentation effluent               | Ph.D. student, Ghent<br>University, Belgium   |
| -Jiajie (JJ) Xu                           | Sept. 12-Aug. 14  | Extracting and separation of <i>n</i> -caproic acid from fermentation broth      | Ph.D. student, China<br>Agricultural University,<br>Beijing, China                                    |
| -Yaping Zhang                             | Sept. 12-Mar. 14  | Enterobacter aerogenes and Pseudomonas aeruginosa and bioelectrochemical systems | Ph.D. student, South China<br>University of Technology,   |
| -Leticia Regueiro<br>Albelleira           | July 13-Jan 14    | Reactor microbiome characterization for a co-digestion study                     | China<br>Ph.D. student from the<br>University of Santiago de<br>Compostela, Spain                     |
| -Sávia Gavazza                            | Sept. 12-Sept. 13 | Azo-dye removal in reduced environments  | Professor, Federal University<br>of Pernambuco, Brazil  |
| -Po-Heng (Henry)<br>Lee                   | June 13-Aug 13    | Syngas fermentation  | Assistant Professor, The<br>Hong Kong Polytechnic<br>University, Hong Kong                            |
| -Victor Robertsson                        | May 13-Aug 13     | Syngas fermentation  | MS student from KTH Royal<br>Institute of Technology,<br>Stockholm, Sweden                            |
| -Maria Jesus<br>Sanchez-Corral            | Febr. 13-Aug. 13  | Syngas fermentation and proteomics   | IMETE MS student, Ghent   |
| -Isabel del Agua<br>Lopez                 | Febr. 13-Aug. 13  | Anaerobic digestion of pumpkin waste   | University, Belgium<br>IMETE MS student, Ghent<br>University, Belgium                                 |
| -Kaiyan Qiu                               | Apr. 13-May 13    | Microbial electrolysis cells   | Post-doc<br>Ph D. student, Paiiing  |
| -Shijian Ge                               | Sept. 11-March 13 | Medium-chain carboxylate production and extraction                               | Ph.D. student, Beijing<br>University of Technology,   |
|   |                   |  | China, now Assistant  |
|   |                   |  | Professor at Nanjing<br>University of Science and   |
|   | 6 12              |  | Technology, China.  |
| -Christine Solis                          | Summer 12         | Microcosm studies in Barrow, Alaska (through PolarTrec Program)                  | High-school teacher in Los<br>Angeles, CA   |
| -Viktor Hällman<br>(visiting MS student)  | June 12-Aug. 12   | Scaling up syngas fermentation   | MS student from KTH Royal<br>Institute of Technology,<br>Stockholm, Sweden                            |
| -Adrianus van<br>Haandel                  | May 12-June 12    | <i>n</i> -Caproate production in Brazil  | Professor at the Federal<br>University of Campina<br>Grande, Brazil                                   |
| -Kyoung-Yeol Kim                          | Dec. 11-Jun. 12   | Microfluidic bioelectrochemical sensor   | Ph.D. student, Gwangju  |
|   |                   |  | Institute of Science and<br>Technology (GIST), Republic<br>of Korea                                   |
| -Wei Zhang                                | Nov. 10-Nov. 11   | Undefined mixed cultures in bioreactors and soil                                 | Assistant Prof., North China<br>Electric Power University   |
| -Zhongjian Li                             | Sept. 09-Sept. 11 | Mechanisms of electron transfer in biofilms                                      | Ph.D. student, Zhejiang<br>University, China, now<br>Associate Professor of                           |
| -James Miller                             | Summer 11         | Cyclic voltammetry at Barrow, Alaska (through PolarTrec Program)                 | Zhejiang University.<br>High-school teacher,<br>Cleveland, Ohio                                       |
| -Nebiyu Merdekios                         | May 10-Aug. 10    | Selective removal of caproate with pertraction                                   | MS student, Wageningen  |
| (visiting MS student)<br>-Sebastian Heger | June 10-Aug. 10   | EcoTox studies for biofuels production   | University, The Netherlands<br>MS student, Technical  |
| -Marianna Villano                         | Jan. 10-June 10   | Making chemical products on the cathode  | University Aachen, Germany<br>Ph.D. student, Sapienza   |
| -Wiratni                                  | Jul. 09-Apr. 10   | Low-tech anaerobic digester for farmers in Indonesia                             | University of Rome, Italy<br>Associate Professor, Gadjah  |
| -Renato Carrhá<br>Leitão                  | Sept. 09-Nov. 09  | Solids digestion   | Mada University, Indonesia<br>Researcher, Brazilian<br>Agricultural Research<br>Corporation (Embrapa) |
|   |                   |  | I   |

| -Arjan Dekker<br>(visiting MS student)<br>-Nathan Ball | Jul. 09-Nov. 09<br>Jun. 09-Aug. 09 | Selective removal of n-butyrate with pertraction and<br>the effect on butyrate fermentation<br>Pure-culture studies in bioelectrochemical systems | MS student, Wageningen<br>University, The Netherlands<br>MS student, KAUST, Saudi-<br>Arabia |
|--|------------------------------------|---|--|
| -Brett Barron  | Summer 07, 08, 09                  | MFC labs and kits for high-school students  | Chemistry high-school<br>teacher, Hazelwood Central<br>High School District, MO              |
| -Amanda Scampini                                       | April 09-May 09                    | Upflow anaerobic sludge blanket treatment of acidified<br>brewery wastewater  | MS student, MIT, MA  |
| -Khalidah Jafaar<br>(Cornell Humphrey<br>Fellow)       | Sept. 08-April 09                  | Anaerobic digestion of date-palm waste  | M.Eng. student, Cornell  |
| -Zeynep Aydinkaya<br>(visiting MS student)             | Jan. 08-Jan. 09                    | Anaerobic digestion of domestic wastewater in UASB and AMBR systems   | MS student, Bogaziçi<br>University, Turkey   |
| -Jan Arends (visiting<br>MS student)                   | Oct. 07-April 2008                 | Mechanisms of exocellular electron transfer with knock-out strains of <i>Pseudomonas aeruginosa</i>   | Ph.D. student, Verstraete Lab,<br>Gent University, Belgium                                   |
| -Erin Roades   | Summer 07                          | Research Experience for Teachers project  | Chemistry high-school<br>teacher, Hazelwood Central  |
| -Young Whan Kim  | Sept. 02-Sept. 04                  | Effect of sonification on sludge characteristics and methanogenic activity  | High School District, MO<br>Governmental Position,<br>Busan, South-Korea                     |

#### **Rotation Ph.D. Student Research Instruction**

Supervised graduate students who rotated in my lab for a semester: Miya Tseng-West (Summer 2022, Uni-Tübigen); Ginés Martinez-Cano (Summer-Winter 2021); Vienvilay Phandanouvong Lozano (Fall 2012-Spring 2013, Microbiology); Alex Esche (Fall 2010, BEE); Devin Doud (Spring 2010, Microbiology); Armanda Roco (Spring 2010, Microbiology); Hnin Aung (Fall 2008, BEE); Larry Page (Spring 2008, DBBS); Joost Groot (Fall 2007, EECE); Abhas Singh (Spring 2006, EECE).

#### HIWI Students

Supervised BS and MS students during regular academic semesters: Hanna Heinzmann, Pauline Just, Alina Gante, Nils Botzen, Abha Al-Qoteby, Fady Samir Isaiah Isaac; Winnie Iu; Ferran Agullé i Manobens; Johann Moore; Johanna Oefele; Diana-Sheila Heberle (May 22-present; Chemistry); Dorothea Schütterle (June 22-present; MS Molecular medicine); Annika Lilli Duczmal (April 2022-present; BS Biology); Manishkumar Ghodadara (Feb. 22-present; MS AEG); Lisa Önning (Dec. 21-present; BS Chemistry); Alli (Toyin) Oluwatoyin (Nov. 2021-present; MS Geosciences); Steffen Erdle (Oct. 2021-Dec. 2022; BS biochemistry); Elias Schermuly (Sept. 2021-present; MS Biochemistry); Janet Just (Aug. 2021-present; BS Biologie); Tilman Schramm (Apr. 21-present; BS Biology); Benedikt Jäger (Dec. 2020-Oct. 2021; BS Physics): David Keβler (Nov. 2020-Feb. 2021: BS Biology): Raphael Thomas Mayer (Jan. 2020-present; BS Umweltnaturwissenschaften); Sylvia Lemke (Sep. 2019-Mar. 2021; BS/MS Bio); Laura Gerlach (Aug. 2019-Dec. 2020; MS Bio); Daniel Boateng (Jul. 2019-Aug. 2019; MS AEG); Andreas-Mark Enkerlin (Jul. 2019-Aug. 2019 and June 2020-Sept 2021; BS Bio); Kurt Gemeinhardt (Jan. 19-Mar. 2021; MS Geo-Ecology); Nicholas-Alexander Behrens (Oct. 2018-Oct. 2019; MS Geo); Michael Buchner (Oct. 2018-Nov. 2018; BS Geosciences); Caroline Schlaiß (Sept. 2018-present; BS/MS Geo-Ecology); Nicole Smith (May. 2018-Mar. 2021; MS Applied and Environmental Geoscience [AEG]); Panunporn (Elli) Tutiyasarn (Febr. 2018-present; MS AEG); Monika Temovska (Febr. 2018-present; MS AEG); and Elena Schiller (May 2017-Oct. 2018; BS Biochemistry).