

## MELVIN C. MOLSTAD PRIZE

The Melvin C. Molstad Prize in Chemical Engineering is awarded to that student or group of students of the senior class in chemical engineering with the most original design of a chemical product and/or process system.

<u>Year</u>	<u>Project</u>	<u>Students</u>	<u>Advisor</u>
1978	Methanol Manufacture	Suzanne Bird Raymond Fortna Annette Glaudel	W.D. Seider
1979	Methanol to Gasoline	Barbara A. Esposito Thomas G. McDowell William M. Ziegler	W.D. Seider
1980	Methyl-tertiary-butyl-ether	Francis Petrocelli Bruce Vrana Steven Winston	E.D. Glandt
1981	Shale Oil Retorting	Mark A. Baker Alex V. Moomjy Rudolph Richards	S.W. Churchill
1982	Pressure-swing Adsorption Oxygen Generation	Randahl Cooley Mary Cusack Patti Luke	A.L. Myers
1983	Fluidized-bed Coal Combustion for Electricity Generation	Gary Binstock Marcie Lampert Glenn MacNichol	E.D. Glandt
1984	Biosynthetic Production of Acetic Acid	Richard T. Elander David Glover Mark Sullivan	D.J. Graves
1985	Anhydrous Alcohol Using <i>Zymomonas Mobilis</i>	Stephen Galante Francis Liu Kamesh Venugopal	W.D. Seider
1986	Analysis of Front-end De-ethanizer for Ethylene Recovery	David Block Sonia Myers Maria Pino	E.D. Glandt

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1986HM	Novobiocin by Streptomyces Niveus	Kimberly Henry Alfred S. Lee Valerie Oscilowski	D.J. Graves
1986HM	Dehydration of Ethanol on a Molecular Sieve	Mark D. Edelson David E. Simon Michael F. Sullivan	A.L. Myers
1987	Ethane Recovery from Natural Gas	Christopher C. Arnold John C. Kellow Donald P. Orloski	T.R. Colmenares
1987HM	Industrial Production of L-aspartic Acid and D-alanine	Michelle Difilippantonio Debra Feldman Thomas MacVittie	J.A. Quinn
1987HM	Inert Gas Generation	Davy H. Levy Michael D. Ward	A.L. Myers
1988	Utility System Design for a Chemical Plant	Kent Ganocy Andrew Salinger Malvika Singh	W.D. Seider
1988HM	Hydrogeneration of Butyric Acid	Grace E. Colon Cynthia D. Pauli Randall Q. Snurr	D.J. Graves
1989	Recombinant Acrobe for Citric Acid	Joseph R. Adamo Amy J. Hourigan Laura E. Skorpinski	J.A. Quinn
1990	Hydrogen and Carbon Monoxide Production	Fern S. Abrams Raymond J. Gray Fadi Hindi	W.D. Seider
1991	Zero Emission from a Tetrahydrofuran Plant	Anthony Adamo David Perkis Talid Sinno	S.W. Churchill
1991HM	Krypton and Xenon from Air	Michael Brose David Corti Kurt McPoland	W.D. Seider
1991HM	Germanium from Optical Fiber Effluents	Rob Caren Philip Grasso Martha Jones	J.M. Vohs

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1992	Methanol Manufacture by Partial Oxidation of Methane	Patrick S. Doyle Paul J. Evans II William F. Feehery	S.W. Churchill
1993	CO <sub>2</sub> Fixation by Filamentous Algae for Mitigating the Greenhouse Effect	Gretchen Albright Chaitanya Desai David Wallace	J.A. Quinn
1994	Propoxylated Ethylenodiamine	Dominik Dolenc Madhav Mirani Nancy Yang	L. H. Ungar
1995	Di-Tertiary-Butyl-Peroxide Manufacture	Kyo Sun Lee Cliff Levy Nicole Steckman	W. D. Seider
1996	Dimethylformamide from Supercritical Carbon Dioxide	Ellery Bann Doug Camposano Safiyya S. Shabazz	S. W. Churchill
1997	1,3 Butadiene to Styrene	Sean Gallagher Ly Heng Kyle Lawrence	A. L. Myers
1998	1-Hexene Manufacture	Brett Cohen Benjamin Smith Stephen Tieri	A. L. Myers
1999	Methyl-Methacrylate Manufacture	Christopher Brinkerhoff Adam McCabe Nitin Natesan	Paddy O'Flynn
1999HM	C <sub>4</sub> Byproduct Upgrade	Michael R. Phillips Christopher Tanzi Lyly Trinh	W. D. Seider
2000	Ethylene and Acetic Acid Manufacture	Jason Daniel Lisa Garaffo Martin Zalesak	D.D. Perlmutter
2000HM	Ultra-Pure Nitrogen	Peggy Chan Matthew Morrow Jason Vollbracht	T. R. Sinno

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2001	Ethylene from Ethane	Matthew Fedors Samuel Holliday Stephanie Kirsch	R. J. Gorte
2002	Batch Di(3-Pentyl) Malate	Mikael Conception Matthew Fucci Ryan Matley	T. R. Sinno
2002HM	Fuel Processor for 5 kW Fuel Cell	Catherine Celler Yuriy Roman Paul Tomlin	R. J. Gorte
2002 HM	Rapamycin Coated Stents	Rajesh C. Noronha Osamah J. Saeedi Jeffrey F. Smith	S. L. Diamond
2003	Recombinant Human Antithrombin III Production from Milk of Transgenic Goats	Frank DePaoli Russell Dickhart Robyn B. Nathanson	E. T. Boder
2003 HM	Epitaxial Silicon Wafers via Plasma Vapor Deposition	David Brass Aaron Lee	T. R. Sinno
2004	Silicon Wafers Through the Use of the Czochralski Growth Process	Sean Cusack Eiji Takizawa Joyce Tam	T. R. Sinno
2004 HM	Pentafluoroethane from Tetrachloroethylene and Hydrogen Fluoride	Greg Hallahan Jonathan Sussman	W. D. Seider
2005	Screening Kinase Inhibitors Using Microfluidics	Qing-Min Chen Lauren Beth Heend Jeffrey Waring	J. C. Crocker
2005 HM	Silicon-Germanium Hetero- Epitaxial Chips for Wireless Devices	Bijal Shah Jeroslav Keybl David Young	T. R. Sinno
2006	PlasmaFluor Microfluidic Blood Coagulation Analyzer	Jon Beus Betsy Lee Jocelyn Nelson	J. C. Crocker
2006 HM	Furfural & Methyl- hydrofuran-based Biorefinery	Rich Baliban Ryan Tomlinson	W. K. Shieh

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2007	Furfural and Tetrahydrofuran from Corn Cobs	Manuel Camacho Teresa Chen Myra Lujan-Suarez	E. T. Boder
2008	SNPScreen: High-Throughput Lung Cancer Genotyping Using the BioMark™ Microfluidic Platform	Larry Dooling Divya Jayaraman Tushar Khanna Keith Mangam	J. C. Crocker
2008 HM	Software Product to Simulate and Control Thin Film Deposition	Asli Sahin Bilge Uz Daniel Wallman	T. R. Sinno
2009	High-Throughput Screening of Clopidogrel Resistance using Microfluidic Technology	Amanda Abbott Elizabeth Kohli Zhenteng Li Paul O'Brien	S. L. Diamond
2009 2 <sup>nd</sup> Place	Design and Control using Stochastic Models of Deposition Reactors	Peter Beltramo Christina Bodarky Helen Kyd	T. R. Sinno
2010	Algae to Alkanes	Liane Carlson Michael Lee Chukuemeka Oje Arthur Xu	S. W. Churchill
2010 2 <sup>nd</sup> Place	Waste Heat Recovery	Edward Nie Luisa Rodriguez Ali Raza Brian Wright	W. K. Shieh
2011	Algae to Biodiesel	Daniel Choi Spencer Glantz Jasmin Imran Alsous	S. W. Churchill
2011 2 <sup>nd</sup> Place	Terephthalic Acid using Ionic Liquids	Na Cao Erin Chang Maria Kaufman	D. Lee

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2011 3rd Place	Design and Control Software for Materials Processing	Efrem Braun Marija Mircevska Manuel Molina Villalba	T. R. Sinno
2012	Microfluidic Production of Depohaloperidol with Controlled Release	Gregory Cordina Abby Lee William Mulhearn Gurnimrat Sidhu	J. C. Crocker
2012 2nd Place	Blood Processing Unit	Daniel Moonan Chinmay Paranjape Jack Tirone Kristina Wang	S. L. Diamond
2012 3rd Place	Gas Turbine Heat Recovery	Michelle Calabrese Kaitlin Douglass Brendan Orinstein Kritithy Vasansiri Marisa Wang	W. K. Shieh
2013	Clinical Testing of Citrated Blood	Elizabeth Cummings Vamsi Vuppala Melissa Wang	S. L. Diamond
2013 2nd Place	Propane to Acrylic Acid	Amanda Culp Kevin Holmes Rohan Nagrath Dan Nessenson	J. M. Vohs
2013 3rd Place	Propylene from Marcellus Shale Gas	Blake Gendron Andrew Glace Ryan Littlefield Christian Mirabile	W. D. Seider
2014	Stem Cell Therapy for Spinal Cord Injuries	Priya Kumar Adam Muncan Diana Moock Michelle Sorkin	M. R. Wattenbarger
2014 2nd Place	Export of Marcellus Shale LNG	Ann Hewitt Steven Lee Ryan Marschang Tyler Moeller	S. P. Holleran
2014 3rd Place	Sunlight to Convert Carbon Dioxide into Transportation Fuels	Scott Danielsen Elizabeth Glover Katherine McCarty Luisa Valle	T. R. Sinno

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2015	1,3-Propanediol from Glycerol	Evans Molel Hannah Phillips Alexander Smith	S. P. Holleran
2015 2nd Place	Natural Gas to BTX	Bruce Chanenchuk Alex Evans Sandhya Thiyagarajan	W. K. Shieh
2015 3rd Place	NGL/LPG Extraction from Shale Gas	Jocelyn Champagne Freddy Ordonez Zhiyi Zhang	W. D. Seider
2016	C4 Operations Optimization	Michael Moroney Evan Smith Marissa Thompson Fernando Torres	W. K. Shieh
2016 2nd Place	Oleosin Manufacture	Steve Casey Hailey Edelstein Rebecca Michelson Nikita Rao	M. R. Wattenbarger D. A. Hammer
2016 3rd Place	Cocoa Liquor, Butter, and Powder	Mack Asselstine Joe Mollo Jesus Morales Vasiliki Papanikopoulos	S. P. Holleran
2017	Phenol from Benzene	Bryan Daowdat Gerard Hoeltzel Robert Tannenbaum	S. P. Holleran
2017 2nd Place	An Efficient and Safe Cooking Stove for Las Delicias, El Salvador	Maria Castañer Daniel Li Nicolas Minor	W. D. Seider
2017 3rd Place	Polyether Plant Design	Christina Hum Mauricio Tassano Carol Wang	S. A. Bidstrup-Allen
2018	Design of a Flexible, High-volume Direct Flue Gas-to-Algae Conversion Process for Value-added Bioproducts	Casey Barkan Kyle DeLuca Mikaela Preston	W. D. Seider
2018 2nd Place	Process for Sustainably Sourced p-Xylene	Grace Memmo John Calhoun Newlon Xiaoxin Tang	S. P. Holleran

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2018 3rd Place	Monoclonal Antibody Production and Purification	Hope McMahon Jessica Schwartz Shritama Ray	J. C. Crocker
2019	Production of Single Cell Protein and Astaxanthin Using Methanol as Carbon Source	Craig Jahnke Corinne Pillarella Brielle Weiner	B. Lim
2019 2nd Place	Culture-Derived Human Platelets for Clinical Transfusion	Alayna Choo Gabrielle Leon Susanna Jaramillo	M. R. Wattenbarger
2019 3rd Place	Ethanol to Ethyl Acetate	Kerri Heuser Vinson Liao Neha Narain	D. Lee
2020	Production of Astaxanthin Using Modified <i>E. coli</i> Cells	Christina Eng Connor Gallagher Maura Kimmel	W. D. Seider
2020 2nd Place	Design of CAR-T Cell Manufacturing Process	Liam Bartie Lauren Duhamel Ruby Pan	J. C. Crocker
2020 3rd Place	Batch Production of a Potent Small Molecule Active Pharmaceutical Ingredient	Isuru Amarasekera Jinwan Cho Jason Li	M. R. Wattenbarger
2021	CO <sub>2</sub> Sequestration by Allam Cycle	Raghav Chaturvedi Eric Kennedy Sarron Metew	W. D. Seider
2021 2nd Place	Biofuels for Aviation	Chase Novak Thomas Vasquez Molly Zawacki	S. P. Holleran
2021 3rd Place	Manufacturing Strategy for the Production of 200 Million Sterile Doses of an mRNA Vaccine for COVID-19	Irene Labarta Sarabeth Hoffman Alison Simpkins	S. L. Diamond