



# One Hundred Eighty-Third Commencement

Saturday, May Eighth

Two Thousand and Twenty-One

Rushmore Plaza Civic Center Barnett Arena

# ORDER OF CEREMONY

<b>Master of Ceremonies</b>	Dr. Lance Roberts
<b>Processional (<i>Stand</i>)</b>	South Dakota Mines Brass Choir
<i>Intrada No. 7 by Melchoir and The Earle of Oxford's Marche by William Bird</i>	
<b>Presentation of Colors</b>	Army ROTC Color Guard
<b>President's Message</b>	Dr. Jim Rankin
<b>Presentation of the Guy E. March Medals</b>	Dr. Lance Roberts
<b>Recognition of the 50 Year Graduates</b>	Dr. Lance Roberts
<b>Senior Class Representative's Message</b>	Ms. Rosalia Dawley
<b>Awarding of Emeritus Status to Dean Mahon</b>	Dr. Jim Rankin
<b>Message from the Board of Regents</b>	Ms. Pam Roberts
<b>Presentation of Honorary &amp; Posthumous Degrees</b>	Dr. Jim Rankin
<b>Conferral of Degrees</b>	Dr. Jim Rankin
<b>Presentation of Degree Candidates</b>	Dr. Patricia Mahon
<b>Retirement of Colors</b>	Army ROTC Color Guard
<b>Recessional (<i>Stand</i>)</b>	South Dakota Mines Brass Choir
<i>Day of Joy! by Antonin Dvorak</i>	

## SOUTH DAKOTA MINES BRASS CHOIR

Dr. Haley Armstrong, Director	Austin Kaul, Tuba
Kaden Adrian, Trumpet	Samantha Kunkel, Horn
Dillon Dahlke, Percussion	Thomas Mayfield, Euphonium
Sam Gusso, Percussion	Ethan Parsons, Euphonium
Evan Heilman, Trumpet	Kole Pickner, Euphonium
Micah Hoylman, Trumpet	Dustin Richards, Percussion
Garret Jankord, Trombone	Madeline Vagts, Trumpet
Kenji Johnson, Trombone	Jayden Vollmouth, Horn
Rebecca Johnson, Horn	Derek Whitesides, Tuba

*This program is not an official document. Due to strict requirements, it must be printed before the final list of degree candidates can be determined.*

# **GUY E. MARCH MEDAL**

## **2020 RECIPIENT**

### **Dr. Scott Kenner**

Dr. Scott Kenner graduated from South Dakota Mines with a bachelor's degree in civil engineering in 1977 and a master's degree in civil engineering in 1979. He received a PhD in environmental engineering sciences from the University of Florida in 1992. He joined the faculty at Mines in August 1993 as an associate professor of civil and environmental engineering. Over the first two years, he developed a curriculum for the water resources component that evolved into a sequence of four undergraduate and four graduate courses, which is still in place today. He has mentored more than 50 master's degree students and eight PhD students, and continues to support three master's and three PhD students through externally-funded research.

His teaching efforts were recognized in 2008 when he received the Bernard A. Ennenga Faculty Award for excellence in teaching and motivating students, and in 2018 when he received the Presidential Award for Outstanding Professor. He worked on development of the HONORS@mines program and supported the EPICS program through advising student project teams. He was appointed head of the civil and environmental engineering department in July 2016 after serving as interim head for one year. He retired in 2020.

He has conducted more than \$4.5 million of research influencing water resources management for entities including the City of Rapid City; Pennington County; the South Dakota Department of Natural Resources; South Dakota Game, Fish, and Parks; the US Army Corps of Engineers; and the Oglala Sioux Tribe. He has completed sabbaticals to New Zealand in 2006 and to Mongolia as a Fulbright Scholar in 2012-13. He is currently part of a research team studying and comparing riverine systems in the mountain step eco-region of the US and Mongolia; this project is a collaboration with five US universities and two Mongolian agencies.

He has been active in various organizations, including the American Society of Civil Engineers (ASCE), the South Dakota Engineering Society, the ASCE Urban Water Resources Research Institute, the Rapid City Area Schools STEAM2 Task Force, the board of directors of the South Dakota Mines Center for Alumni Relations and Advancement, the South Dakota Mines Alumni Reunion Committee, the International Students Inc. House, and the South Dakota Presbytery.

# GUY E. MARCH MEDAL

## 2021 RECIPIENTS

### **Mr. Cliff & Mrs. Debra Bienert**

Debra (Zapp) Bienert graduated from South Dakota Mines in 1978 with a bachelor's degree in electrical engineering. She was a member of Tau Beta Pi, Pi Mu Epsilon, and IEEE, serving as vice president of IEEE during her senior year. Debra participated in several intramural sports and acted as a practice partner for the men's tennis team.

Cliff Bienert graduated from Mines in 1979 with a bachelor's degree in civil engineering. He was a member of Tau Beta Pi and served as president of the American Society of Civil Engineers (ASCE) Student Chapter. Cliff led the building of the first successful concrete canoe at Mines and constructed the base for the Tau Beta Pi bronze cast that still stands outside the library.

Cliff and Debra met on campus and were married in 1980.

After graduation, Debra worked for Trane Company in LaCrosse, WI, and relocated to Green Bay after she and Cliff were married. In Green Bay she worked for the local electric utility holding positions of planning engineer, senior operating engineer, and industrial marketing supervisor. Following their move from Green Bay in 1991, Debra discovered her affinity for teaching. For the last 27 years, Debra has taught math and sciences at various colleges and high schools.

After graduation, Cliff worked for Procter and Gamble in Green Bay in the paper industry, moving from there to lead tissue paper manufacturing operations, plants, and divisions in Canada, northern Wisconsin, New York, Massachusetts, and New Jersey. Cliff was vice president of operations for CityForest Corporation, Irving Tissue, and Schweitzer-Mauduit International.

Cliff and Debra retired and returned to Rapid City in November 2011. Looking to devote time to their alma mater, they returned to Mines to get their master's degrees and were subsequently hired to teach at Mines, Debra in the mathematics department and Cliff in civil and construction engineering. After eight years of sharing their knowledge and experience with students, they are retiring as of this date.

Both have been very active on campus and throughout the community serving together on the Newman Center Advisory Board in various roles, including president. Both are also faculty advisors for the Class Project Committee.

Additionally, Debra serves on the Admissions Committee, and organized and facilitated the West River Math Contest for the past six years. She received the 2019 Virginia Simpson Award for her work on this contest within the Rapid City community.

Cliff has been a South Dakota Mines CARA board member since 2012 and an active member of the Real Estate Committee for 10 years. He is also an active Hospital Eucharistic Minister.

# 50-YEAR GRADUATES

**Class of 1970 – 305 graduates (242 BS degrees, 62 MS degrees, 1 PhD)**

**Class of 1971 – 300 graduates (237 BS degrees, 62 MS degrees, 1 PhD)**

*Only those attending today's Commencement are listed below.*

Ken Ackerman, EE, Highlands Ranch, CO	Bill Jensen, EE, Indianapolis, IN
Pam Ackerman, Math, Highlands Ranch, CO	Jerome Johnson, EE, Brookings, SD
Alan Anderson, ME, Rapid City, SD	Ron Johnson, MS Phys, Black Hawk, SD
Ray Atkins, MinE, Box Elder, SD	John Kelly, ChE, Cypress, TX
Ronnie Baruth, MinE, Alpena, SD	Glen Larson, ChE, Aberdeen, SD
Curtis Belden, GeolE, Edinburg, TX	Olav Maehle, ME, Oakdale, MN
Bob Bickett, Math, Rapid City, SD	Jim Martin, Geol, Sturgis, SD
Pete Birrenkott, ME, Rapid City, SD	Del McDonald, EE, Tucson, AZ
Rod Brady, EE, Rapid City, SD	Kirby Mellegard, EE, Rapid City, SD
Jerry Brown, MS CE, Rapid City, SD	Ken Nelson, GeolE, Belle Fourche, SD
Dennis Bryan, GeolE, Reno, NV	Randy Nelson, GeolE, Ovilla, TX
Carlos Calderon, MS MinE, North Miami, FL	Steve Obenauer, EE, Fargo, ND
Jim Cameron, ChE, Phoenix, AZ	Doug Opp, EE, Yorktown, VA
Steve Danekas, ME, Naperville, IL	Gene Quinn, CE, Rapid City, SD
Randy Daughenbaugh, Chem, Rapid City, SD	Joe Ratigan, ME, Rapid City, SD
John Davies, ChE, Rapid City, SD	Ron Revell, ME, Cedar Park, TX
Bob Deis, EE, Spearfish, SD	Frank Rubin, ME, Spearfish, SD
Harald Eriksen, CE, Glencoe, MN	Craig Scott, Chem, Chesapeake, VA
Greg Farke, EE, Armour, SD	Steve Sewell, ChE, Hot Springs, SD
Ron Feldhaus, EE, Bloomington, MN	Dave Shaddrick, MS Geol, Reno, NV
Leroy Foster, GeolE, Fort Pierre, SD	Grant Shelton, ME, Lakewood, CO
AO Freier, EE, Lead, SD	Ron Steelman, ChE, Woodbury, MN
Karl Gerdes, ChE, Davis, CA	Lyle Steffen, Geol, Nemo, SD
Wayne Greaves, GeolE, Rapid City, SD	Dan Sultz, ChE, Centennial, CO
Tom Hayes, Chem, Hudson, WI	Bernie Tompkins, EE, Greenville, SC
Jim Hildebrand, ME, Sturgis, SD	Jerry Wright, CE, Rapid City, SD
Dianne Hinsch, Chem, Suwanee, GA	Gary Young, ME, Omaha, NE
Dennis Horning, ME, Laramie, WY	Tom Zeller, ME, Rapid City, SD
Jim Hutchins, ChE, Prairieville, LA	

# SENIOR CLASS REPRESENTATIVE

## **Ms. Rosalia Dawley**

Rosalia Dawley came to South Dakota Mines after graduating from West Marshall High School in State Center, IA. Her parents are John and Michele Dawley, and she has two siblings, Elaina and Will.

Dawley has been involved in various clubs and activities while at South Dakota Mines. She served on the Student Association Senate as student affairs chair and as vice president; as such, she represented the student body on the South Dakota Mines COVID task force, helped facilitate the creation of a hygiene bank in conjunction with the campus food shelf, and raised awareness of student mental health issues on campus. She is a member of the Institute of Industrial and Systems Engineers, previously serving as secretary and vice president. She was inducted into the Order of the Engineer and Alpha Pi Mu, the industrial engineering honor society. She was also an orientation leader.

After graduating with her Bachelor of Science degree in industrial engineering and engineering management, Dawley hopes to work in manufacturing or process engineering.

# AWARDING OF EMERTIUS STATUS

## **Dr. Patricia Mahon**

Dr. Patricia Mahon has served as vice president for student development and dean of students at South Dakota Mines since 2000. Her responsibilities include overseeing the offices of career and professional development, the Center for Inclusion, community standards/conduct, Counseling, Ivanhoe International Center, Residence Life, Student Engagement, Title IX, and the Veterans Resource Center. Under her leadership, the Student Development division members collaborate across campus and the broader community to provide students personal and professional development opportunities and services in a safe, healthy, and inclusive environment. In the past two decades, residence hall capacity doubled; new residence halls were built west of campus, which helped create a safer neighborhood. The Surbeck Center (student union) experienced two major renovations and an expansion is once again in the planning stages.

Prior to coming to South Dakota Mines, Mahon worked in student services at Fort Hays State University in Kansas and at Montana State University-Billings. She started her career as a secondary education teacher at Shelby High School in Shelby, Montana. Mahon earned her bachelor's and master's degrees from Montana State University-Billings and her PhD from Kansas State University. She also participated in the Institute for Educational Management at Harvard Graduate School of Education.

Mahon is a member of the National Association of Student Personnel Administrators (NASPA). She served on the Feeding South Dakota Board of Directors, is a member of the Elevate Rapid City Workforce Development Committee, Kiwanis International, and the American Association of University Women (AAUW). She is an advisor to many student organizations, including Student Association Senate, Circle K International, and Order of Omega. On evenings and weekends, you will almost always find her supporting our Hardrocker scholar athletes or attending choir, band, and drama performances.

Mahon and her husband, Tom, will both retire this year from South Dakota Mines. They plan to move to her childhood home at the foot of the Big Horn Mountains near Sheridan, WY. They are proud to be a part of the Hardrocker community and will continue contributing through an endowed scholarship to support future students.

# HONORARY DOCTOR OF PUBLIC SERVICE

## **Mr. Patrick Burchill**

Pat Burchill is a native of Pierre, SD. He holds a Bachelor of Science degree in business and a Master of Business Administration from the University of South Dakota.

Burchill retired from US Bank in July of 2020 after a 43-year career, which was all spent in Rapid City. Positions he held throughout his long career included credit analyst, commercial loan officer, commercial team lead, senior vice president/project manager in wealth management, and regional president.

Burchill has served on numerous boards and committees in both Rapid City and across South Dakota over the last 40 years. His current board involvement includes chairman of the South Dakota Ellsworth Development Authority, Black Hills Area Community Foundation, chairman of the Monument Health Foundation, vice chairman of Monument Health System, Rapid City Diocese finance and investment committees, South Dakota Bankers Association Foundation, and the South Dakota Governor's Office of Economic Development Board.

Burchill loves Rapid City, living in South Dakota, and being actively involved with his many boards and committees. He has been a long-standing friend and supporter of South Dakota Mines over the last 40 years. He has served on the Center for Alumni Relations and Advancement (formerly Foundation) Investment Committee, on the board for the Hardrock Club, and on two university president search committees.

As local president of US Bank, Burchill also participated in the corporate sponsorship of numerous campus events, both academic and athletic. He and his wife, Lucy, can often be seen at local sporting events with a special interest in the Hardrock men and women basketball teams. As active personal boosters of Mines athletics, Burchill and his wife sponsor an annual women's basketball scholarship.



# HONORARY DOCTOR OF PUBLIC SERVICE

## Ms. Becky Hammon

Becky Hammon is in her seventh season as an assistant coach with the San Antonio Spurs, and previously served as the head coach of the Spurs Las Vegas Summer League in 2015, 2016 and 2019. She was the first-ever female head coach in the NBA's Summer League, and she led the Spurs to the Summer League title in 2015. On December 30, 2020, Hammon became the first female acting head coach in NBA history after Spurs' head coach Gregg Popovich was ejected during a game against the Los Angeles Lakers.

Prior to joining the Spurs, Hammon had a successful career in the WNBA. She retired following the 2014 season after 16 years in the league, where she played eight seasons for the San Antonio Stars (2007-14) and eight seasons for the New York Liberty (1999-2006). In WNBA history, Hammon ranks second free-throw percentage, fourth in three-point field goals made, fifth in assists, 12th in total points, 12th in games played, 15th in free throws made, 15th in total minutes and 19th in field goals made. She ended her career as the Stars' all-time leader in assists, points per game and three-point field goals made. She was selected as one of the WNBA's Top20@20, an honor given to the WNBA's 20 greatest and most influential players in the league's 20-year history. She was named one of the WNBA's Top 15 Players of all time in July 2011, voted twice to the All-WNBA First Team twice and to the All-WNBA Second Team, was a six-time WNBA All-Star, and was the top vote-getter for the Stars All-Decade Team in 2012. In 2008, Hammon led the Stars to their only WNBA Finals appearance in franchise history. She was inducted into the San Antonio Sports Hall of Fame in 2018, and was also inducted into the Ring of Honor by the New York Liberty in 2015.

Although Hammon is a natural-born citizen of the United States, she became a naturalized Russian citizen in 2008, and competed with the Russian women's national basketball team at the 2008 and 2012 Olympics. She helped lead the Russian team to a bronze medal against China in 2008.

She played collegiately at Colorado State (1995-99) where she was a three-time All American, the 1999 Naismith Award winner, and was named Colorado Sportswoman of the Year. She led her team to a 33-3 record in the 1998-99 season and helped them advance to the NCAA Tournament's Sweet Sixteen. She was named the WAC Mountain Division player of the year for the 1998-99 season. Hammon set many Colorado State all-time records, including points (2740), points per game (21.92), field goals made (918), free throws made (539), three-point field goals made (365) and assists (538). Hammon was inducted into the Colorado State University Sports Hall of Fame in 2004, and her Colorado State jersey number (25) was retired at Moby Arena.

Hammon was born in Rapid City, SD. She played basketball at Stevens High School and graduated from there in 1995. She was named South Dakota Miss Basketball during her junior year and was voted the South Dakota Player of the Year during her senior year. She and her wife, Brenda, have two sons, Cayden and Samuel.

# HONORARY DOCTOR OF SCIENCE

## Mr. Tony Jensen

Tony Jensen retired in 2020 as president and chief executive officer of Royal Gold, Inc., the leading publicly traded precious metals royalty company. Jensen has more than 35 years of professional mining experience and has served in various domestic and international capacities.

Jensen joined Placer Amex, a predecessor US subsidiary of Placer Dome, in 1985. From 1986 to 1993, he held various engineering and management positions at the Golden Sunlight Mine in Montana and concurrently conducted engineering evaluations and exploration activities in Alaska. In 1993, Jensen was appointed assistant to the president for Placer Dome US in San Francisco, California, where he contributed to the growth of the region. Jensen was appointed assistant mine general manager of operations at the La Coipa mine, one of the world's largest silver mines at the time with significant gold production, near Copiapo, Chile, in 1996. In 1998, Jensen was appointed director, finance and strategic growth for Placer Dome Latin America in Santiago, Chile, where he pursued regional growth opportunities and rationalized assets.

Jensen returned to the United States to manage the Cortez Joint Venture in 1999, where he led this world-class operation in areas of safety, environmental excellence, and operational efficiency while growing the production, reserves profile and business opportunities of the operation. Exploration team efforts resulted in the discovery of the multi-million ounce Cortez Hills gold deposit in 2002. Cortez produced over one million ounces of gold each year under Jensen's tenure at one of the most attractive cost structures in the industry.

In 2003, Jensen accepted new challenges with Royal Gold, Inc. He assumed the responsibilities of president and chief operating officer with the principal goal of increasing shareholder value through accretive growth. In 2004, Jensen was elected to the board of directors of the company. In 2006, Jensen assumed the full responsibilities of the company as president and chief executive officer. After nearly 16 years with Royal Gold and 13 years as CEO, Jensen announced his intended retirement in 2020. During his tenure, he led the company to a 13-fold increase in market valuation as well as an 8.5 percent and 16.5 percent compounded annual growth rate in share price appreciation and dividends paid, respectively.

Jensen is a 1984 graduate of South Dakota Mines, where he earned a Bachelor of Science in mining engineering. He also holds a certificate of finance from Golden Gate University in San Francisco. In addition to his participation on the South Dakota Mines University Advisory Board, he holds board positions with Black Hills Corporation, Antofagasta PLC, and Antofagasta Minerals.

# POSTHUMOUS DEGREE

## Mr. Houston Wagner

As a child, Houston Wagner read books about everything, and science was his favorite subject.

Wagner attended the International School in Bellevue, WA, at which students study seven subjects for seven years. He studied the German language and traveled to Germany twice. He won many awards in high school, including the President's Education Award for Outstanding Academic Excellence in German, an AP Scholar Award with Honor, AP Scholar Award with Distinction, and a varsity letter for academics. Wagner was voted speaker at the baccalaureate and gave a rousing speech that had his classmates standing and cheering.

When Wagner started looking at colleges, he wanted a small school with the same philosophy as his high school, and he ultimately chose to attend South Dakota Mines. While on campus, he earned several awards, including the Dean's List for spring 2014 and 2016, became a member of the Sigma Gamma Epsilon Honor's Society - Theta Nu Chapter, and served as the treasurer of the student chapter of Society of Economic Geologists.

In 2016 and 2017, Wagner worked for Fugro Geoservices, Inc., as a lidar editor. In 2018, he worked for Asarco, LLC, as a quality control lab intern and used statistical analysis to find a way to save the company \$155,000 a year. While working on his thesis in 2019, he also worked for a company trying to reopen a gold mine in the Black Hills.

Wagner graduated with a Bachelor of Science degree in geology from South Dakota Mines in May 2016. He went on to pursue his master's degree in geology and geological engineering, but passed away in November 2019. He is survived by his parents, Mike and Theresa Wagner, and brother Jacob.

# POSTHUMOUS DEGREE

## Mr. Grayson Young

Grayson Young was born in Anchorage, AK, but grew up in Marshfield, MO. He came from a family of six children and was the middle son who had to compete with his two older brothers in almost everything from hand-me-downs to dirt bikes. He was always the fixer in the family and would often help his mother by repairing the gadgets around the house when his father worked out of town. His older brothers often hoodwinked him into fixing their stuff as well.

Young came from a homeschooling family that met regularly with the local homeschooling co-op to learn to play his viola. He was always the adventurous son and whatever he did, he did 200%. Being a mentor was a key character attribute of his, and he blended it well with love toward his family and friends. He was the perfect balance for his older brothers and his younger siblings, especially his sister Annamarie whom he affectionately called "Scooter."

Upon his family moving to Wyoming, Young attended Casper College. As a homeschool graduate, at the age of 16, he was the youngest to attend Casper College at that time and graduated with an AAS degree in mechanical engineering. While at Casper College, he developed a close friendship with faculty member Ardell Knudson. Young had the opportunity to follow Knudson to South Dakota Mines where he also developed a friendship with Dr. Carter Kerk, who became a great mentor for Young.

He completed all his required courses and assignments a full month before he was to graduate with a Bachelor of Science in industrial engineering and engineering management, but was killed in a motorcycle accident on November 20, 2020. While attending South Dakota Mines, Young completed two summer internships with Nucor Steel and was offered a full-time position the same week of his passing.

Young loved the Lord and tried to put God first in all his life choices. If he were here today, he would humbly state that God is the one who made him into the man he was. He leaves behind his parents, Mike, and Angela; stepmother Krista; brothers Paul, Joshua, Noah, and Titus; and sister Annamarie.

## GRADUATE DESIGNATIONS

- †† 2019 Graduate
- † 2020 Graduate
- ‡ Summer 2021 Graduate
- ¥ Honors Program Graduate

### BACHELOR OF SCIENCE DEGREE

*Cum Laude	White Tassels	3.50 - 3.69 GPA
**Magna Cum Laude	Red Tassels	3.70 - 3.89 GPA
***Summa Cum Laude	Gold Tassels	3.90 - 4.00 GPA

### ASSOCIATE OF ARTS DEGREE

•Honors	3.50 – 3.69 GPA
••High Honors	3.70 – 3.89 GPA
•••Highest Honors	3.90 – 4.00 GPA

## DOCTOR OF PHILOSOPHY DEGREE CANDIDATES

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### Biomedical Engineering

Virali Jayesh Parekh

*Dissertation Title: Genome Instability Associated with G-quadruplex and Intramolecular Triplex DNA Structures Leading to Human Diseases*

### Chemical and Biological Engineering

Aditi David †

*Dissertation Title: Traditional, Integrated and Rewired Thermophilic Anaerobic Digestion of Solid Organic Wastes*

### Geology and Geological Engineering

Jennifer Marie Bednar

*Dissertation Title: Current Limitations, Variability, and Role of Topography in Stream Base Flow in the Northern Great Plains of the United States*

Lilly Marie Jones

*Dissertation Title: Assessing Aquifer Vulnerability to Contamination on the Pine Ridge Indian Reservation in Southwestern South Dakota*

### Geology, Geological Engineering, and Mining Engineering

Akshay Anand Chowdu †

*Dissertation Title: Operations Research Applications in Underground Mine Production Scheduling*

### Materials Engineering and Science

Jack Yang †

*Dissertation Title: A Novel Single-Phase to Three-Phase AC-AC Converter*

## **Nanoscience & Nanoengineering**

Anahita Haghizadeh †

*Dissertation Title: Imaging Metal-Enhanced Upconversion Luminescence from NaYF<sub>4</sub>:Yb<sup>3+</sup>, Tm<sup>3+</sup> Nanoparticles on Nanostructured Substrates and Laser Patterning of Semiconductor Nanostructures*

Lin Kang †

*Dissertation Title: Correlated Super-Resolution Fluorescence and Atomic Force Microscopy of Biomaterials*

Divya Kota †

*Dissertation Title: Intra- and Extra-cellular Force Transduction and Sensing in Single Mammalian Cells*

Nikhil Pokharel

*Dissertation Title: Epitaxial Integration of Al on III-V Semiconductors and Microstructure of ordered AlIn<sub>1-x</sub>P Epilayers*

Ishara Shavinda Ratnayake ††

*Dissertation Title: Transmission Electron Microscopy-based Approaches to Gain Mechanistic Insights into the Roles of Notch Signaling in Mature Kidney Epithelium*

Eric D. Schmid †

*Dissertation Title: Fabrication and Characterization of Micro and Nano Channel Structures in Polymer Composites*

## **Physics**

Emily Alyn Dvorak †

*Dissertation Title: Improving Event Reconstruction for More Accurate Cosmic Ray Energy and Composition Measurements in IceCube*

Tyler Adam Liebsch †

*Dissertation Title: Phase Coexistence, Interphase Boundaries, and Nucleation in Perovskite Ferroelectrics*

# MASTER OF SCIENCE DEGREE CANDIDATES

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## **Atmospheric & Environmental Sciences**

Lucas George Graunke

## **Biomedical Engineering**

Taylor MacKenna Bright  
Kaitlyn Aurelia Jing Dickinson ‡  
Anna Grayce Haugen  
Colin Thomas Jones ‡  
Meerab Joseph †  
Nhu Y. Mai ‡  
Deborah Alex Rankin  
Le Ba Nghia Thai ‡  
Maxwell Thomas Veazey

## **Chemical Engineering**

Christopher Sean Beal  
Hannah Marie Dudak  
David Robert Sutton

## **Civil and Environmental Engineering**

Korder Ronald Cropsey  
Kaleb Timothy Hedman  
Hunter Brooks Kiewel  
Joshua Benjamin Knock †  
Devin Thomas Mollers  
Ryan Conner Peyton  
Rashed Rahman  
Theron Lee Singleton  
Trey Keenan Smith  
Chase Scott Storgaard

## **Computational Sciences and Robotics**

Logan Wade Lembke

## **Computer Science and Engineering**

Rosemary Aladiada Akoh ‡  
Alexander Johann Frye ‡

## **Construction Engineering and Management**

Tyler Allen Kleinsasser  
Westley Erik Siebdrath

## **Electrical Engineering**

Sandesh Acharya ††  
Ahsan Aqueeb  
Nirajan Chhetri ††  
Md Rahan Chowdhury  
Shammi Akter Doly  
Md Abir Hossen  
Md Shamimul Islam  
Ali Mohammed Jobayer  
Kunal Khade †  
Md Hafizur Rahman  
Ronald Keith Ross  
Thomas G. Walker

## **Engineering Management**

Hanna Rae Bankers  
Matthew Jacob Greenfield  
Alexandra Veturia Kliche ‡  
Jacob P. Sydow  
Emily Marie Wegner

## **Geology and Geological Engineering**

Jichao Bao  
Brittany Sabrina Coupe  
Devin Pesola Last  
Carson Donald Reimers  
Wyatt Scot Tatge

## **Materials Engineering and Science**

Kevin Daniel Barz ‡  
Logan Anthony Elers ‡  
Runzhou Huang  
Ana Carolina Sousa Ribeiro

## **Mechanical Engineering**

Enis Sefa  
Andrew Joseph Snyder



## **Mining Engineering and Management**

Samuel William Fry Blakely  
Michael Wilfred Dickson  
Caren Allison Goodrich †  
Safiatu Barrie Narteh  
Ryan Patrick Turnwall  
Christopher Earl Young

## **Nanoscience and Nanoengineering**

Sindhu Sureshsingh †

## **Paleontology**

Gavin Jeffrey Davidson  
Grace Ann DeVault

## **Physics**

Chamaka Sandeepa Senarath  
Daniel Ralph Tronstad

# **BACHELOR OF SCIENCE DEGREE CANDIDATES**

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## **Applied Biological Sciences**

Olivia Hedy Briggs  
Tana Lynn Dahlberg  
Jordan Kay Fostvedt  
Rebecca Lynn Johnson  
Nicholas Ryan Massie  
Michaela Marie Shaklee \*\*

## **Applied & Computational Mathematics**

Shaina Brook Colombe  
Dirk Ambrose Dosch  
Delaina Nicole Engle  
Shashwati Shradha †\*\*\*

## **Atmospheric & Environmental Sciences**

Laramie Jaela Colvin  
Austin Joseph Jerke \*\*  
Joseph Map Kragness

### **Biology**

Kyle Jacob Bergevin \*  
Annie Evelyn Brinson  
Daniel Carl Cerfus †  
Mikayla Rose Hibbard \*  
Mikayla Marie Madden  
Magan Demoyne Vaughn \*\*  
Sherif Amad Zineldine \*\*

### **Biomedical Engineering**

Jack Frederick Batho  
Carol Colleen Page  
Samantha Leigh Smith

## **Business Management in Technology**

Ramtin Mashhadi Mohammad Ababaf  
Austin Michael Hammer  
Carlton Michael LaFrance ‡  
Steven Nolasco  
Michael Lawrence Retland  
Aren Charles Wells  
Allec Marc-Kristopher Williams

### **Chemical Engineering**

Erin Breanne Afdahl \*\*  
Kirsten Mary Anderson  
Anthony Robert Federick Best  
Beth Ann Blake  
Matthew Peter Braun †  
Daniel Carl Cerfus

Lily Constance Cutler \*  
Jacob William Dempsey \*  
Enae Isabelle Dessler  
Joseph Thomas Hilsendeger †  
Erick William Hoon \*\*  
Zachary Ray Hoopman \*\*  
Jordan Alex Hoops †  
Khang Trong Huynh \*  
Spencer John Kabran  
Nikita Alexandrovich Nesterov  
Dakin Matthew Nolan  
Abisola Iyanuolu Ojoawo \*\*  
Gregory Warren Opdahl \*\*  
Emily Ann Rolfes  
Megan Jacquelyn Snyder \*\*  
Landon Robert Sohler \*\*  
Jared John Wilson  
Spencer Louis Zur \*

### **Chemistry**

Misti Adria Acevedo †  
Kyle Jacob Bergevin \*  
Lily Constance Cutler \*  
Mikayla Rose Hibbard \*  
Karen Ly \*  
Adam Mitchell Price  
Collin David Rodmyre  
Sherif Amad Zineldine \*\*

### **Civil Engineering**

Aimee Allcock †\*  
Anna N. Allen  
Faith Bottum  
Justin Broekemeier †  
Zachary Bunker \*  
Mark Alexander Cedar Face \*

Evelyn Dalldorf \*  
Andrew James Ferris  
Joshua William Fleming \*\*  
Enya Kathryn Guettler  
Joel Daniel Haas \*\*  
Thayne Joarden Hage  
Benjamin Jensen Hector  
William Dale Hein  
Christian James Heinrich \*  
Carson Daniel Hunt  
Harrison Irwin †  
Tanner Allen Jacobs \*\*  
Luke Michael Koski \*\*\*  
Brandon Miles Kruse †  
Colton Michael Levitt  
Joseph Leonard Luebbers \*\*  
Stephen Cody MacLake  
Jordan Duane Medlock ‡  
Joseph Bryan Mulcahey \*\*\*  
Ira Michael Pace Murphey \*\*  
Timothy R. Myers  
Ryan James Nelson  
Cornelio Adrian Perez \*  
Louis Arthur Ratcliffe \*  
Kate Leanne Schumann \*\*\*  
Nicholas Laurence Sperry \*\*\*  
Austin James Stahlke  
Calvin David Tohm  
Joshua Allen Trapp \*\*

### **Computer Engineering**

Nicholas Anthony Bennett \*\*  
Clayton J. Heeren \*\*  
Oliver John Kotalik  
Jason Anthony Finch Mitchell \*  
Ryan Casson Shell

## **Computer Science**

Timothy Alleyn Adcock

Riley Isaiah Campbell

Zackery Joseph Culberson

Ashlyn Therese Davie

William J. Doering

Ayden John Morgan Drabek

Joshua Duklet †\*\*

Nathaniel Edward Fagrey \*\*

Timothy William Ford

Vedang Deepak Gaonkar \*

Logan Robert Grosz \*\*

Lawrence Wayne Pike Hartnett

Gabriel Dean Hofer

Kenji Keith Johnson \*

Gwyneth Storm Kardelis

Erica Lynn Keeble \*\*

Matthew Krohn ‡

Jennifer Suzanne Kulich

Caden Patrick Lambert

Logan Lee Larson

Deborah Kaye Liknes

Haley Lynn Linnig

Keshav Manghat \*\*

Sterling Robin McKenzie

Taylor James O'Brien

Terry Joseph Pallas

Manasi Paste †

Matthew Allen Reff \*

Shashwati Shradha †\*\*\*

Benjamin Carter Sjoberg \*\*

Woodlin Glenn Smith \*

Ethan Lee Steidl \*\*

Philip Robert Telkamp

Daniel Ray Tesch

Kendric Alexander Thompson \*\*

Morgan Vagts  
Samantha Ranae Wolfe  
Trey David Young

### **Electrical Engineering**

Ian Anderson  
Ellie Nicole Burczek \*\*  
Isaac Kortemeyer †  
Kolton Kugler \*\*\*  
Dalton Anthony Lund \*\*  
Vageesh Sandip Prabhu Tendulkar  
Skye Itza-Chu Rutan-Bedard \*\*\*  
Jacob Joseph Schmit  
Ryan Chase Stremick  
Mitchell Erik Olstad Sueker †\*\*  
Jacob Allen Whempner  
Jacob Kyle Wicklund  
Chase Randall Wiederhoeft  
Grace Jovita Wilson †

### **Geological Engineering**

Lindsey Carla Cederberg  
Garrett Paul Hukill  
Lucas Anthony Olvera  
Ryan Conner Peyton †\*\*\*  
Hillary Rose Ping \*  
Kate Leanne Schumann \*\*\*  
Liam James Ryan Smith

### **Geology**

Christian Albayalde ‡  
Jessica Ann Fabin †  
Garrett Michael Fedora  
Anthony Edward Gordon \*\*  
John Bruce Hewitt  
Gage Anders Koistinen

Patrick Cavanaugh Mulligan  
Michael Lynn Nieland \*\*  
Gabriel Stephan Poteet ‡  
Caleb W. Schraeder ‡\*  
Benjamin Michael Stec  
Adam G. Vantellingen

## **Industrial Engineering and Engineering Management**

Bryan Chisomaga Akunna  
Garrett Milton Bonzell †  
Amelia Bea Bracewell \*\*  
Brayden Patrick Burg  
Austin Blake Chapman  
Rosalia Jane Dawley  
Emma Marie Eckel  
Thomas Antony Engelmann \*\*  
Amanda Joy Haas \*\*  
Amelia Rose Haines \*\*  
Jedidiah Hall  
Trevor Bowen Heinemann  
Ryan King Higginbotham  
Nicholas James House  
Jacob Anthony Jahner  
Edensky Eddy Lormeus  
Spencer Timothy Malsom  
Dakota Skye Merrival \*\*  
Michael Russell Nelson  
Juel Clifford Pluimer II \*\*\*  
Laura M. Staiano \*\*  
Spencer Dean Swedlund \*\*  
Grant Thomas Syverstad  
Ryan Elizabeth Weiss \*\*  
Owen Palmer Winger \*  
Macy Lenore Ziegler \*\*

## **Interdisciplinary Sciences**

Taylor Jane Kerr \*

Kaylee Elaine Wilson †

## **Mechanical Engineering**

Cameron Robert Anderson

Alvin Kenechukwu Aneke

Jack Frederick Batho

Hayley Mikah Benson

Derrick Michael D'Agostino

Bradley Scott Day \*\*\*

Matthew J. Dietz

Tanner Thomas Farnsworth

James Ryan Gormley

Samuel Maurice Gusso

Marcus Andrew Hall

Ethan Patrick Hanson

Justin Charles Johnson

Ian James Jones

Tyler James Kaul \*

Nicolas Richard Kirkvold

Paige Nicole Ling †

Thomas Mathias Machamer \*\*

Landon Earl Marzahn \*\*

Kyle Andrew Mulette

Robert Vern Munyan

Andrew Earl Nelson \*\*\*

Ian McKay Nelson

Daniel Dmytro Nesterenko

Trevor O'Hearn †

Jacob Barnette Peterson

Trey Daniel Powell

Nicholas Eric Pugh

Mycala Leann Read

Mark Daniel Rotert \*\*\*



Anthony Wayne Roth \*\*  
Kobey D. Rushton  
Jeremiah Thomas Scott \*  
Brandon Daniel Sharkey †  
Riley Jaden Singer  
Elora Lee Solomon  
John Thomas Steever  
Keyin Christopher TBurrell  
Camden Lee Weeldreyer \*  
Ryan Paul Witcraft  
Murdoch Alexander Word  
Nicholas Kolby Zell \*\*

### **Metallurgical Engineering**

Seth Elijah Baker  
Trevor Scott Bormann \*\*\*  
Tanner Colpitts †  
Nicholas Giulio D'Attilio \*\*  
Madilyn Rae Fesenmaier ¥\*  
Daniel James Freeman †  
Garret Sutton Hohn  
Bryce Delane King  
Zachary Jason Myers  
Tyler Jay Reikofski  
Jamison Matthew Smith \*  
Mariah Katrael Soebbing-Volk \*  
Kole Curtis Vollmer \*\*  
Bryce Michael Watson

### **Mining Engineering**

Ian Christopher Becket ‡ \*  
Andrew William Boss  
Jacob Marvin Collier  
Andrew James Lawver  
Archibald Warren Minerich  
Trevor James Mutchler

Dillon C. Owens  
Larissa Choi Pawlowski \*  
John Elliot Rank  
Darren Michael Sroor  
Patrick Thomas Today  
Kenneth Jon Veith

**Physics**

Joseph Eamon Brett \*\*\*  
Jeffrey Thomas Gillaspie  
Marcus Andrew Hall  
Jonathan Robert Hulscher  
Abigail Jeanne Otten \*\*\*  
Sage Ryan Preble

**Pre-Professional Health Sciences**

Francesca Facchini  
Torre N. Kavanaugh  
Cade Nicholas Nathan \*

**Science, Technology, and Society**

Taylor Alexis Haire

**ASSOCIATE OF ARTS DEGREE CANDIDATES**

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**General Studies**

Sever Thomas Gilbertson  
Austin James Haider  
Shelby Renee Hinkle  
Greydon Scott Shangreaux

# THE TRADITION OF COMMENCEMENT

Dating back to the universities of thirteenth-century Europe, the conferring of degrees signified that faculty members had attained the guild status of a master. Originally, this “master’s” degree was the only one offered; the baccalaureate was simply a stage towards mastership. During the ceremony, black robes were worn in imitation of the clergy, for at the time church and university were one. When the hood was placed over the candidate’s head, the ceremony was consummated and mastership was achieved.

Over the centuries, graduation evolved to commemorate more than the end of an educational endeavor or the mastership of a craft. It became the start of a new adventure, a passage to professional status recognized by the community of scholars and the community at large.

Today, we call this ceremony commencement, a term defined as both an act of commencing and the ceremony for conferring degrees. In essence, it means a beginning within an end. A middle English term, commencement traces its roots to Anglo-French, Old French, and finally, the Latin word, *cominitiare*, a combination of the prefix *com* and *initiare*, meaning “together, begin,” a fitting origin for a word that evokes a graduate’s first steps taken in fellowship and a poignant reminder that in each destination lies a new dawn.

## ACADEMIC ATTIRE

The use of academic dress stems from costumes used in universities of the fourteenth and fifteenth centuries, particularly at Oxford and Cambridge in England. The dress has been used in the United States since colonial times and was standardized by an Intercollegiate Code in 1895.

The style of gown and hood designate the degree earned. The bachelor’s gown is royal blue without a hood and the sleeves are pointed; the master’s gown is black and has oblong sleeves; and the doctoral gown is trimmed with velvet, has three distinctive chevrons on each arm, and bell-shaped sleeves.

The two colors on the inside of the hood are traditionally the colors of the college granting the degree. The School of Mines colors are blue and gold; however, the hood for the School of Mines is gold and silver, symbolic of the university’s connection to these precious metals. Caps are black mortar boards with the tassel worn over the left front quadrant.

As one may observe from the procession, the faculty wear hoods and gowns of varying styles and colors. The color of the tassel on the hat and the outside velvet trim of the hood indicate the field of study.

# THE CEREMONIAL MACE

During today's ceremony, the chair of the faculty will carry the South Dakota School of Mines & Technology's ceremonial mace. The university mace is an academic tradition that dates back to medieval times. The mace has acquired the ceremonial function of "guarding" the president in the tradition of a medieval sergeant-at-arms.

The School of Mines mace was designed to represent the university's many disciplines. The handle was crafted from a fossil and represents paleontology, while the pink quartz sphere, encased in the symbol of an atom, symbolizes both geology and physics. The silver and gold signify the institution's rich mining tradition. The laurel leaf garland crown, fashioned from Black Hills Gold, represents a mark of honor, distinction, and success.

The mace was designed by Ms. Deborah Mitchell, former director of the Apex Gallery and associate professor in the Department of Humanities. The seal was engraved by Dr. Ryan Koontz, integrated manufacturing specialist for the Center of Excellence for Advanced Multidisciplinary Projects.

# COMMENCEMENT COMMITTEE

Dr. Haley Armstrong  
Ms. Ann Brentlinger  
Mr. Jeremy Bryan  
Ms. Diana Eastman  
Ms. Morgan Else  
Ms. Gina Fiorello  
Mr. Paycen Harroun  
Ms. Jade Herman

Ms. Rachel Howard  
Mr. Marlin Kinzer  
Dr. Travis Kowalski, Chair  
Dr. Patricia Mahon  
Ms. Molly Moore  
Mr. Bryan Schumacher  
Dr. Vladimir Sobolev

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# PHOTOGRAPHY SERVICES

Lifetouch Photography will be providing photography services to the graduates. Photos will be available online at [events.lifetouch.com](http://events.lifetouch.com) approximately one week after the ceremony, and proofs will be mailed to the graduates approximately one week after placing an order.