BOARD OF TRUSTEES
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Terri Hogue Faculty Trustee
Sarah Steers Student Trustee

CEREMONY

Processional

National Anthem
Colorado School of Mines Natural Miners

Welcome
Dr. Paul C. Johnson, President

Student Address
Mr. Nathan Switzner

Keynote Address
Dr. John M. Poate, Senior Vice President Emeritus, Colorado School of Mines

Presentation of the Dr. Bhakta Rath and Sushama Rath Research Award
Dr. Anthony M. Dean, Senior Vice President for Research and Tech Transfer

Announcement and Hooding of Doctoral Degree Recipients

Announcement of Master’s Degree Recipients

Presentation of Candidates for Graduate Degrees
Dr. Bettina Voelker, Interim Dean of Graduate Studies

Presentation of the Class of 2017 to the Board of Trustees
Dr. Paul C. Johnson

Acceptance of Class
Mr. Thomas Jorden

Conferral of Graduate Degrees
Dr. Paul C. Johnson

Closing Remarks
Dr. Paul C. Johnson

Alma Mater
Colorado School of Mines Natural Miners

Recessional
Audience is requested to stand and remain in place until graduates have exited the arena. Please join us for a new alumni reception immediately following the ceremony at Ben Parker Student Center.

All graduates will be photographed by a professional photographer after receiving their diplomas. Proofs will be sent to each graduate; copies may be ordered directly from the photographer.
College of Earth Resource Sciences and Engineering
Dr. Ramona M. Graves, Dean

MINING ENGINEERING
Dr. Priscilla P. Nelson, Department Head

Mining and Earth Systems Engineering, Master of Science
Michael David Burkhardt  Avon, Colorado
Christopher Alan Enright  Cupertino, California
Benjamin J. Goertz  San Antonio, Texas
Aditya Juganda  Bandung, Indonesia

GEOLOGY AND GEOLOGICAL ENGINEERING
Dr. M. Stephen Enders, Interim Department Head

Mineral Exploration, Professional Master
Caleb Engle  Muncie, Indiana
Mark Daniel Raimo  Concord, New Hampshire

Petroleum Reservoir Systems, Professional Master
Michael Lee Peffer  Fremont, California

Geological Engineering, Master of Science
Jenny Lin Wolicki  Parker, Colorado

Geological Engineering, Master of Science
Alvaro Puente Querejazu  Santa Cruz, Bolivia
Caroline Rebecca Scheevel  Austin, Texas

Geology, Master of Science
Evan Stanley Alired  Bakersfield, California
Elvan Aydin  Kircaali, Bulgaria
Daniel Norman Brugioni  Greenwood Village, Colorado
Grainne Moira Byrne  Kildare, Ireland
Steven Combes Crouch  Lakewood, Colorado
James Everett Friedrich  Broomfield, Colorado
Michael J. Harty III  Henderson, Nevada
Sarah E. King  Aspen, Colorado
Johana Margaret Pedriza Rojas  Bogota, Colombia
Andrew Ryan Reisdorf  Spring, Texas
Julia Bellamy Wood  Tulsa, Oklahoma

Hydrology, Master of Science
Amelia May Hayes  Carlsbad, New Mexico

PETROLEUM ENGINEERING
Dr. Erdal Ozkan, Department Head

Petroleum Engineering, Master of Engineering
Abdulateef Ahmed Alomair  Dammam, Saudi Arabia
Ahmed Alsaleh*  Dammam, Saudi Arabia
Nabeel Khalid Sheikh  Parker, Colorado
Nathan F. Skitt  Westminster, Colorado
Logan Allen Wilkerson  Humble, Texas

Petroleum Engineering, Master of Science
Tugce Calisgan  Izmir, Turkey
Dina Hegazy  Cairo, Egypt
Jamila Huseynova  Baku, Azerbaijan
Jessica Graciela Irriarte Lopez  Maracaibo, Venezuela
Omar Tariq Khaleel  Abu Dhabi, United Arab Emirates

GEOPHYSICS
Dr. Roelof K. Snieder, Interim Department Head

Petroleum Reservoir Systems, Professional Master
Piyanan Chanchompoon  Khon Kaen, Thailand
Abigail Rose Michel  Colorado Springs, Colorado

Geophysical Engineering, Master of Science
Paula Andrea Carolina Barbosa Murillo  Caracas, Venezuela

Geophysics, Master of Science
Karla Cecilia Avila Vizuett  State of Mexico, Mexico
Austin Ross Bailey  Denton, Texas
Andrea Balza  Caracas, Venezuela
Benjamin Robert Bloss  Montrose, Colorado
Prat Boonyasatthan  Khon Kaen City, Thailand
Carlos Eduardo Convers Gomez  Santander, Colombia
James Ronald Johnson  Colorado Springs, Colorado
Colton James Kohnke  Bremerton, Washington
Jacob William Utley  Lakewood, Colorado

ECONOMICS AND BUSINESS
Dr. Roderick G. Eggert, Interim Division Director

Engineering and Technology Management, Master of Science
Ahmed Al-Arfaj  Dhafram, Saudi Arabia
Ahmed Alsaleh*  Dammam, Saudi Arabia
Chris Page Brockman  Richmond, Texas
Caleb Alexander Courkamp  Parker, Colorado
Justin P. Deardens  Colorado Springs, Colorado
Sean David Dollinger  Highlands Ranch, Colorado
David Russell Galbreath  Street, Maryland
Robert Newton Killion III  The Woodlands, Texas
Timothy York Lancaster  The Woodlands, Texas
Rebeca Danielle Locricchio  Northglenn, Colorado
Colter James Lund  Manti, Utah
Kylen Kearsns McClintock  Madison, Wisconsin
Zachary D. McMullen  Littleton, Colorado
Kendra Jane Meeker  Houston, Texas
James Robert Meyer  Seattle, Washington
Frank Worthington Musick  Buena Vista, Colorado
Dilan Anthony Orrino  Broomfield, Colorado
Marco Alan Povis Rosales  Lima, Peru
Sampson Alec Ramsay  Littleton, Colorado
Zachary Harrison Richter  San Antonio, Texas
Sydney Elizabeth Rogers  Castle Rock, Colorado
Abhishek Kumar Sahay  Williamsburg, Virginia
Gabrielle Yolawn Stuckenschneider  Roxborough Park, Colorado
Fred Yantao Zhu  Longmont, Colorado

Mineral and Energy Economics, Master of Science
Mohammed Alhusseini  Al-Khobar, Saudi Arabia
Lucas Taylor Cala  Albuquerque, New Mexico
Steven Dahlke  Saint Louis Park, Minnesota
Jose Raul Dapello Vizcarra  Lima, Peru
Eugenio Luis Dominguez De Urruticoechea  Santiago, Chile
Seth David Fredrick  Salt Lake City, Utah
Sadie Ruth Fulton  Denver, Colorado
Michael Heath Hanley  Rapid City, South Dakota
Tissilie Igopo  Dar Es Salaam, Tanzania
Martin Kohn  Denver, Colorado
David Thomas Manning  Acton, Massachusetts
Babatunde Obinna Onwukeme  
Lagos, Nigeria  
dov Eliezer Quint  
Brooklyn, New York  
Teresa Viviana Ramos  
Lima, Peru  
ryan John Riebau  
Milwaukee, Wisconsin  
Rebecca Diane Schauer  
Houston, Texas  
Jaime Esteban Ruben Sepulveda Zamorano  
Quillota, Chile  
Ensieh Shojaeddini  
Tehran, Iran  
Joshua Aaron Strassburger  
Stamford, Connecticut

HUMANITIES, ARTS AND SOCIAL SCIENCES  
Dr. Hussein A. Amery, Interim Division Director  
International Political Economy of Resources, Master’s  
Eros Bazebizona Mizidy  
Pointe-Noire, Republic of Congo  
Cass Whaley  
DeRidder, Louisiana

College of Applied Science and Engineering  
Dr. Michael J. Kaufman, Dean

GEORGE S. ANSELL DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING  
Dr. Angus A. Rockett, Department Head  
Materials Science, Master of Science  
Ashcon Hossein Akhavan  
Castle Rock, Colorado  
Dustin Ray Crouse  
Eugene, Missouri  
Matthew Anthony Musselman  
Littleton, Colorado

Metallurgical and Materials Engineering, Master of Science  
Jarred Justin Froman  
Boone, Colorado  
Virginia Katherine Judge  
McAlester, Oklahoma

CHEMICAL AND BIOLOGICAL ENGINEERING  
Dr. Colin A. Wolden, Interim Department Head  
Chemical Engineering, Master of Science  
Michelle Anne Carlson  
Niwot, Colorado  
Vinh The Nguyen*  
Westminster, Colorado  
Michael Stephen Riederer  
Juneau, Alaska  
Brittany Ann Schreiner  
Greenwood Village, Colorado  
Vishal Kumar Srivastava  
Kanpur, India

CHEMISTRY  
Dr. David T. Wu, Department Head  
Nuclear Engineering, Master of Engineering  
Francesca Victoria Mallett  
Pearland, Texas  
Chemistry, Master of Science  
Kyle Thompson Kluherz  
Loveland, Colorado

PHYSICS  
Dr. Jeff Squier, Department Head  
Applied Physics, Master of Science  
Austin Lee Cummings  
Parker, Colorado  
Brian Alexander Steward  
Lakewood, Colorado  
Materials Science, Master of Science  
Derek Michael Fogel  
Kernersville, North Carolina

College of Engineering and Computational Sciences  
Dr. Kevin L. Moore, Dean

APPLIED MATHEMATICS AND STATISTICS  
Dr. Gregory E. Fasshauer, Department Head  
Applied Mathematics and Statistics, Master of Science  
Computational and Applied Mathematics Specialty  
Rebecca Paige Conrad  
Papillion, Nebraska

Applied Mathematics and Statistics, Master of Science  
Statistics Specialty  
Rachel Justine Penning  
Granville, Iowa

CIVIL AND ENVIRONMENTAL ENGINEERING  
Dr. John E. McCray, Department Head  
Civil and Environmental Engineering, Master of Science  
Heather Ann Barnes  
Satellite Beach, Florida  
Jared Anthony Coleman  
West Palm Beach, Florida  
Logan Frederick Forsythe  
Columbia, Missouri  
Chad Walker George  
Gunnison, Colorado  
Teigan Ann Gulliver  
Minneapolis, Minnesota  
Dena Michelle Hout  
Mission Viejo, California  
Sarah Catherine Hurley  
Highlands Ranch, Colorado  
Ryan William Lanham  
Chicago, Illinois  
Nicholas John Martin  
Burlingame, California  
Luis Carlos Mauricio-Perez  
Chihuahua, Mexico  
Stephanie Sasha Ng  
Highlands Ranch, Colorado  
Susan P. Paret  
Thornton, Colorado  
Katie Lynne Schumacher  
Murphy, Texas  
Jason Wyatt Wiggins  
Boulder, Colorado  
Zeena Clair Williss  
Yerington, Nevada  
Mengyuan Yu  
Thornton, Colorado  
Kun Zhang  
Tangshan City, China

Environmental Engineering Science, Master of Science  
Kevin Edward Chan  
Highlands Ranch, Colorado  
Amber Lynn Parmet  
Idaho Springs, Colorado  
Amanda Setsuko Yoshino  
Boulder, Colorado

Hydrology, Master of Science  
Jared Matthew Clark  
Monterey, California  
Elizabeth Marie Gallo  
Atlanta, Georgia  
Caroline Harper Ike  
Stamford, Connecticut  
Abbye Elisabeth Neel  
Denver, Colorado  
Alan Wilson Tipton  
Mandeville, Louisiana
MASTER OF ENGINEERING | MASTER OF SCIENCE continued

Class of 2017

COMPUTER SCIENCE
Dr. Tracy K. Camp, Department Head

Computer Science, Master of Science
Michael Harrison Adkins Lincoln, Massachusetts
Matthew Scott Bailey Denton, Texas
Matthew Daniel Berntson Edina, Minnesota
Aruna Chen Tongliao, China
William John Kelly Fort Collins, Colorado
Kento Okamoto Davis, California
Jennifer Lynn Ryan Lyme, New Hampshire
Matthew Daniel Berntson Lakewood Colorado
Alan VanderMeer Boerne, Texas
Zachary T. Webb

ELECTRICAL ENGINEERING
Dr. Atef Z. Elsherbeni, Department Head

Electrical Engineering, Master of Science
Gilchrist Hoshiaki Day Roswell, New Mexico
Xuliang Hou Harbin, China
Jamison Alan Olsten Evergreen, Colorado
Daniel James Rosen Colorado Springs, Colorado
Hossein Sartipizadeh* Dezful, Iran
Daniel Ervin Schemmel Colorado Springs, Colorado

MECHANICAL ENGINEERING
Dr. Gregory S. Jackson, Department Head

Mechanical Engineering, Master of Science
Amir Ahmady Tehran, Iran
Elizabeth Ann Appelhans Fort Collins, Colorado
Carly Marie Blaes Thornton, Colorado
Samuel Timothy Brown Colorado Springs, Colorado
Ashley N. Bucsek Howell, New Jersey
Joshua Kurt Burmeister Littleton, Colorado
Ian Dahl Cairns Mercer Island, Washington
Travis Jerome Canney Barrington, New Hampshire
Tyler Lindo Faoro Penrose, Colorado
Benjamin E. Long Albuquerque, New Mexico
Vincent Evan Pane Longmont, Colorado
Abhishek Saurin Parikh Ahmedabad, India
Andres Xavier Ramirez Pflugerville, Texas
David Joseph Schack The Woodlands, Texas
Ryan Lee Thorpe Aurora, Colorado
Sajith Indika Wijesuriya Colombo, Sri Lanka
DOCTOR OF PHILOSOPHY

Class of 2017

College of Earth Resource Sciences and Engineering
Dr. Ramona M. Graves, Dean

MINING ENGINEERING
Dr. Priscilla P. Nelson, Department Head

Mining and Earth Systems Engineering, Doctor of Philosophy
Samuel Atta Lolon, Makassar, Indonesia
ADVISOR: Juergen O. Brune | CO-ADVISOR: Gregory E. Bogin
Computational Modeling of Barometric Pressure Fluctuation Effects on Explosive Methane-Air Mixtures in a Longwall Mine Gob
Kirk Haley McDaniel, Denver, Colorado
ADVISOR: Juergen O. Brune
A New Methodology to Evaluate Critical Fire Life Safety and Emergency Preparedness in Vehicular Road Tunnels

GEOLOGY AND GEOLOGICAL ENGINEERING
Dr. M. Stephen Enders, Interim Department Head

Geological Engineering, Doctor of Philosophy
Judith Ann Schenk, Peabody, Massachusetts
ADVISOR: Eileen P. Poeter
Criteria for Evaluating Model Deficiency for Groundwater Models and the Effects of Eliminating Deficient Models on Multi-Model Analysis Using AICc, KIC, AIC and BIC
Mohammad H. Naqi, Kuwait City, Kuwait
ADVISOR: Bruce D. Trudgill
Salt-Influenced Normal Faulting Related to Salt-Dissolution and Extensional Tectonics: 3-D Seismic Analysis and 2-D Numerical Modeling of the Salt Valley Salt Wall, Utah and Danish Central Graben, North Sea
Kenya Ono, Osaka, Japan
ADVISOR: Piret Plink-Bjorklund
Deepwater Slope Channels on Active Continental Margins, Eocene Forearc Basin, California: Architecture and Froude Supercritical Flow Channel Fills

Geology, Doctor of Philosophy
Evan Rhys Jones, Santa Monica, California
ADVISOR: Piret Plink-Bjorklund
Probabilistic Source-To-Sink Analysis of the Provenance of the California Paleoriver: Implications for the Early Eocene Paleogeography of Western North America

Hydrology, Doctor of Philosophy
Timothy James Fry, St. George, Utah
ADVISOR: Reed M. Maxwell
High Resolution Modeling For Water Quantity and Quality, Understanding the Role of Green Infrastructure Best Management Practices In Ultra Urban Environments: Connections, Feedbacks and Interactions

PETROLEUM ENGINEERING
Dr. Erdal Ozkan, Department Head

Petroleum Engineering, Doctor of Philosophy
Wissam Jamal Assiri, Jeddah, Saudi Arabia
ADVISOR: Erdal Ozkan
Interpretation of Pseudotransient Linear Flow in Production Data Analysis Of Tight, Naturally Fractured Reservoirs
Seyyedeh Elham Parsa, Bojnord, Iran
ADVISOR: Erdal Ozkan | CO-ADVISOR: Xiaolong Yin
Experimental Study on the Effect of Confinement on Propane Phase Behavior

ECONOMICS AND BUSINESS
Dr. Roderick G. Eggert, Interim Division Director

Mineral and Energy Economics, Doctor of Philosophy
Muhammad Imam Akimaya, Pekanbaru, Indonesia
ADVISOR: Michael B. Heeley | CO-ADVISOR: Carol Dahl
The Economics of Gasoline Subsidy Cost Reduction Policy: Case Study of Indonesia
Brett Watson Jordan, Tomball, Texas
ADVISOR: Roderick G. Eggert
Three Essays in Resource Economics and Availability

College of Applied Science and Engineering
Dr. Michael J. Kaufman, Dean

GEORGE S. ANSELL DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING
Dr. Angus A. Rockett, Department Head

Materials Science, Doctor of Philosophy
Jesse Aaron Miller, Pagosa Springs, Colorado
ADVISOR: Ivar Reimanis
Non-Stoichiometric Magnesium Aluminate Spinel: Microstructure Evolution and its Effect on Properties
Taylor Marie Wilkinson, Rio Rancho, New Mexico
ADVISOR: Corinne E. Packard
Characterization of Ferroelasticity in Rare-Earth Orthophosphates by Nanoindentation

Metallurgical and Materials Engineering, Doctor of Philosophy
Nathan T. Switzer, Plattsburg, Missouri
ADVISOR: Zhenzhen Yu
Friction Welding for Cladding Applications: Processing, Microstructure and Mechanical Properties of Inertia Friction Welds of Stainless Steel to Low Carbon Steel and Evaluation
Kristin Elizabeth Tippey, Tuscaloosa, Alabama
ADVISOR: Kip O. Findley
Effects of Alloying and Processing Modifications on Precipitation and Strength in 9% Cr Ferritic/Martensitic Steels for Fast Reactor Cladding

Nuclear Engineering, Doctor of Philosophy
Nicolas Evan Shugart, Colorado Springs, Colorado
ADVISOR: Jeffrey C. King
Development of a Safeguards Process Simulation for Open and Closed Nuclear Fuel Cycles

CHEMICAL AND BIOLOGICAL ENGINEERING
Dr. Colin A. Wolden, Interim Department Head

Chemical Engineering, Doctor of Philosophy
Vinh The Nguyen*, Westminster, Colorado
ADVISOR: Andrew M. Herring
Development of Direct-Methane Proton Exchange Membrane Fuel Cells at Low and Elevated Temperatures
Timothy Christopher Schutt, Fort Collins, Colorado
ADVISOR: Christopher M. Maupin
Investigations of Ionic-Liquid-Mediated Hydrolysis of Cellulosic Compounds With and Without Cellulase Enzymes
Zhao Wang Zong, Tianchang, China
ADVISOR: Moses A. Carreon
Synthesis of Small Pore Zeolite Membranes for Nitrogen/Methane Separation

*Double Degree Recipient
CHEMISTRY
Dr. David T. Wu, Department Head

Applied Chemistry, Doctor of Philosophy
Jingjing Wang | Shishou, China
ADVISOR: James F. Ranville
Investigation of Manufactured Carbon in the Environment
Henok Adem Yemam | Dilla, Ethiopia
ADVISOR: Alan S. Selliinger
Novel Small Molecules for Detection of Sensitive Nuclear Materials

PHYSICS
Dr. Jeff Squier, Department Head

Applied Physics, Doctor of Philosophy
Jeremy Justin Bundgaard | Colorado Springs, Colorado
ADVISOR: Uwe Greife
Developments Toward Understanding and Improving the Low Energy Measurement Capabilities of a Fission Time Projection Chamber
Michael David LaCount | Fort Collins, Colorado
ADVISOR: Mark T. Lusk
Energy Pooling Upconversion in Free Space and Optical Cavities
Carlos Francisco Medina Hernandez | Bogota, Colombia
ADVISOR: Lawrence R. Wiencke
The Central Laser Facility at the Pierre Auger Observatory. Studies of the Atmospheric Vertical Aerosol Optical Depth and Other Applications to Cosmic Ray Measurements
Xiaoning Zang | Yantai, China
ADVISOR: Mark T. Lusk
Energy and Information Transfer Via Coherent Exciton Wave Packets

College of Engineering and Computational Sciences
Dr. Kevin L. Moore, Dean

APPLIED MATHEMATICS AND STATISTICS
Dr. Gregory E. Fasshauer, Department Head

Applied Mathematics and Statistics, Doctor of Philosophy
Computational and Applied Mathematics Specialty
Deborah Anne Shutt | West Chester, Ohio
ADVISOR: Stephen D. Pankavich | CO-ADVISOR: Aaron T. Porter
Modeling, Analysis and Simulation of Complex Disease Dynamics for HIV, Ebola and Zika Virus

CIVIL AND ENVIRONMENTAL ENGINEERING
Dr. John E. McCray, Department Head

Civil and Environmental Engineering, Doctor of Philosophy
Brent Mark Brouillard | Loveland, Colorado
ADVISOR: Jonathan O. Sharp | CO-ADVISOR: Eric R. Dickenson
Biogeochemical and Ecological Impacts Resulting From Beetle-Induced Forest Mortality
Peng Deng | Changsha, China
ADVISOR: Shiling Pei
Quantitative Approaches For Assessing Ground Motion Impact in Performance Based Earthquake Engineering
Simon Heru Prasetyo | Bandung, Indonesia
ADVISOR: Marte S. Gutierrez
Hydro-Mechanical Analysis of Tunneling in Saturated Ground Using a Novel and Efficient Sequential Coupling Technique

DOCTOR OF PHILOSOPHY continued

Doritha Field Ramey | Ferguson, Missouri
ADVISOR: Tzahi Y. Cath | CO-ADVISOR: Junko Munakata Marr
Tailored Water Treatment in Distributed Wastewater Reclamation: Investigation of Biological Stability, and Energy and Nutrient Recovery

COMPUTER SCIENCE
Dr. Tracy K. Camp, Department Head

Computer Science, Doctor of Philosophy
Wendy Denise Fisher | Dayton, Ohio
ADVISOR: Tracy K. Camp
Machine Learning for the Automatic Detection of Anomalous Events

ELECTRICAL ENGINEERING
Dr. Atef Z. Elsherbeni, Department Head

Electrical Engineering, Doctor of Philosophy
Bananeh Ansari | Hamedan, Iran
ADVISOR: Marcelo G. Simoes
Energy Management of Smart Distribution Systems
Mohammad Babakmehr | Shiraz, Iran
ADVISOR: Marcelo G. Simoes
Compressive Power Systems: Applications of Compressive Sensing and Sparse Recovery in the Analysis of Smart Power Grids
Hossein Sartipizadeh* | Dezful, Iran
ADVISOR: Tyrone L. Vincent | CO-ADVISOR: Robert J. Kee
Uncertainty Characterization in Robust MPC using an Approximate Convex Hull

MECHANICAL ENGINEERING
Dr. Gregory S. Jackson, Department Head

Operations Research with Engineering, Doctor of Philosophy Interdisciplinary
Benjamin Lloyd Johnson | Colorado Springs, Colorado
ADVISOR: Alexandra M. Newman | CO-ADVISOR: Jeffrey C. King
Operations Research Applications in Nuclear Energy
Mojtaba Rezakhah | Tehran, Iran
ADVISOR: Alexandra M. Newman
Open Pit Mine Planning with Stockpiling

Mechanical Engineering, Doctor of Philosophy
Gladys Anyango Anyenya | Nairobi, Kenya
ADVISOR: Neal P. Sullivan | CO-ADVISOR: Alexandra M. Newman
Solid-Oxide Fuel Cells for Unconventional Oil and Gas Production
Songpo Li | Zhao County, China
ADVISOR: Xiaoli Zhang
Novel Intuitive Human-Robot Interaction using 3-D Gaze
Michael Jonathan Wagner | Highlands Ranch, Colorado
ADVISOR: Robert J. Braun | CO-ADVISOR: Alexandra M. Newman
Optimization of Stored Energy Dispatch for Concentrating Solar Power Systems

DOUBLE DEGREE RECIPIENTS
Ahmed Alsaleh
Master of Engineering, Petroleum Engineering
Master of Science, Engineering and Technology Management

Vinh The Nguyen
Master of Science, Chemical Engineering
Doctor of Philosophy, Chemical Engineering
Hossein Sartipizadeh
Master of Science, Electrical Engineering
Doctor of Philosophy, Electrical Engineering
CEREMONY

Processional

National Anthem
Colorado School of Mines Natural Miners

Welcome
Dr. Paul C. Johnson, President

Student Address
Ms. Claire Mahoney

Distinguished Speaker
Dr. John Coors

Recognition of Retiring Faculty
Dr. Thomas Boyd, Provost and Executive Vice President

Presentation of Trustees Outstanding Faculty Award
Mr. Thomas Jorden, Chairman, Board of Trustees

Recognition of Commissioned Cadets
Colonel John T. Cairney, United States Air Force

Announcement of Baccalaureate Degree Recipients

Presentation of Candidates for Baccalaureate Degrees
Dr. Thomas Boyd, Provost and Executive Vice President

Presentation of the Class of 2017 to the Board of Trustees
Dr. Paul C. Johnson

Acceptance of Class
Mr. Thomas Jorden

Conferral of Degrees
Dr. Paul C. Johnson

Closing Remarks
Dr. Paul C. Johnson

Alma Mater
Colorado School of Mines Natural Miners

Recessional
Audience is requested to stand and remain in place until graduates have exited the stadium. Please join us for a new alumni reception immediately following the ceremony at Stermole Track & Field Complex.

All graduates will be photographed by a professional photographer after receiving their diplomas. Proofs will be sent to each graduate; copies may be ordered directly from the photographer.
COLLEGE OF EARTH RESOURCE SCIENCES AND ENGINEERING
Dr. Ramona M. Graves, Dean

MINING ENGINEERING
Dr. Priscilla P. Nelson, Department Head

Mining Engineering, Bachelor of Science
Vassil Ivanov Boasherliev
Ryan Timothy Burkholder
Adam Lyle Chapman
Jean-Luc Des Rivieres
Lizeth Ernestina Diaz**
Christopher A. Drury
Samuel Leo Egelhoff
Scott Andrew Evans
Scott J. Fedel
Kellen John Flanders
Mathieu Gauthier-Cote**
Spencer Matthew Gil
Michael Tyler Gross
John Rex Huston Hewitt, Jr.
Jason William LaForest
Kwn-Yum Consunji Lock
Clark Ryan McCune
Sean Julius McDonald
Liam O’Donovan Gabriel McGrail
Jacob Albers Millville**
Eric Arthur Mohr
Kevin Sean Mulcare
Elmer Renardi Prasieto
Linnea Marie Roth
Ryan Christopher Simus
Logan J. Stout
Dulguun Tseng Ayush**
Brayden M. Wickam
Michael Shane Wrona**
Justin Michael Zandt

PARKER, COLORADO
LAKewood, Colorado
Aurora, Colorado
Huntington, Illinois
Lakewood, Colorado
Broomfield, Colorado
Castle Rock, Colorado
Lakewood, Colorado
Lakewood, Colorado
Pleasant Hill, Colorado
Manhattan, Kansas
Denver, Colorado
Littleton, Colorado
Canon City, Colorado
Fort Collins, Colorado
Lakewood, Colorado
Fairbanks, Alaska
Redlands, California
Pueblo, Colorado
Darkhan, Mongolia
Billings, Montana
Lake Havasu City, Arizona
Berthoud, Colorado

PETROLEUM ENGINEERING
Dr. Erdal Ozkan, Department Head

Petroleum Engineering, Bachelor of Science
Mohamad Syaza Abd Shukor
Ehab Abdallah
Dania Habib Abualhamayel
Ahmed Kamel Al Shubbar
Brett Christopher Allison***
Omar Abdulaziz A. Almulhim***
Ala’a Abd arabil Alsa man
Anwar Mahmoud Al tus
Hisham Hussein Amery
Arum Kaashyap Arunachalam
Sarkis Bagramyan*
Garrett Reeves Baily
Nirmesh Balan***
Matthew Ryan Balderston
Mizafir A. Almulhim
Liang Dong
Joshua Michael Bolling, Sr.
Jacob Horace Boucher
Joe Edwin Brandenburg
Nicholas Matthew Brown
Eric Wayne Bryan*
Thao Thi Bui
Jace Patrick Bullinger
Sean Michael Burroughs
Yuanjun Cai
Taylor Jacob Carlson
Jason C. Cateora*
David Jungwook Choi
Jared Scott Cooper
Patrick Cordes
Matthew Tyler Countryman
Christopher R. Dalrymple
Menghao Dan
Trevor Scott De Young
James Scott DeBartolomeis
Gregory Neil DeRonde
Alexander William Deseau
Ruben Diaz
Edith Dimbokie Difima
Eric Tang Dong
Bradley Thomas Elliott
Jacob Daniel Elliott*
Dania Yousef Elmadahun
Rand Fetyan*
John Charles Forrest
Sara Frances Foster

Colorado Springs, Colorado
Golden, Colorado
Safa, Saudi Arabia
Cypress, Texas
Dammam, Saudi Arabia
Sayyat, Saudi Arabia
Lakewood, Colorado
Denver, Colorado
Chennai, India
Aurora, Colorado
Highlands Ranch, Colorado
Tangkak, Malaysia
Westminster, Colorado
Sham Alam, Selangor, Malaysia
Sugar Grove, Pennsylvania
Grand Junction, Colorado
Winston-Salem, North Carolina
Englewood, Colorado
Colorado Springs, Colorado
Kuala Lumpur, Malaysia
Houston, Texas
Montrose, Colorado
Littleton, Colorado
Buena Vista, Colorado
Grand Falls, Texas
Littleton, Colorado
Larkspur, Colorado
Lakewood, Colorado
Boerne, Texas
Strasburg, Colorado
Shandong, China
Colorado Springs, Colorado
Golden, Colorado
Lakewood, Colorado
Lincoln, Nebraska
Highlands Ranch, Colorado
Myrtle Beach, South Carolina
Prairie Grove, Arkansas
Lesahn, China
Colorado Springs, Colorado
Greenwood Village, Colorado
Pine, Colorado
Littleton, Colorado
Wichita, Kansas

GEOPHYSICS AND GEOPHYSICAL ENGINEERING
Dr. M. Stephen Enders, Interim Department Head

Geological Engineering, Bachelor of Science
Jacob Thomas Adamson*
Ethan Edward Bacon
Alex Robert Badgett
Rachel Elizabeth Becker**
Paul Andreas Bertsch
Rachel Christine Bierna
Amber Georgette Brusak
Isabel Nicole Chaltas
Emmanuel Corral
Joseph Thomas Dellenbach
Megan J. Doughty
Joseph James Edelen
Alexander Charles Feng
Allan William Foster, III
Anna Marie Gallagher*
John Joseph Lunzer
Halle Madeleine Nicholas
Andrew Michael Potter
Maximilian F. Pranckh

Salida, Colorado
Lake Tomahawk, Wisconsin
Golden, Colorado
Coppell, Texas
Larkspur, Colorado
Viera, Florida
Pueblo West, Colorado
Dallas, Texas
Arvada, Colorado
Gilcrest, Colorado
Colorado Springs, Colorado
Lakewood, Colorado
Parker, Colorado
Walnut Creek, California
Chesterfield, Missouri
Bainbridge Island, Washington
Edina, Minnesota
Yardley, Pennsylvania
Dublin, Ohio

Colorado Springs, Colorado
Highlands Ranch, Colorado
Myrtle Beach, South Carolina
Prairie Grove, Arkansas
Lebanon, China
Colorado Springs, Colorado
Greenwood Village, Colorado
Pine, Colorado
Littleton, Colorado
Wichita, Kansas
Democratic Republic of Congo
Sugar Land, Texas
Westminster, Colorado
Bakersfield, California
Aurora, Colorado
Baghdad, Iraq
Rawlins, Wyoming
Bellaire, Texas
Katrina Jeanne Gallup*  
Nicholas Rohde Garland  
Ryan David Gray  
Ryan Warren Griffith  
Zachary Michael Haegner  
Shaun David Hamlin  
Seth Jay Hansen  
Zakary J. Hartman  
Christian Clayton Haun*  
Chao Shan He  
Andrew Burns Heft*  
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Asher James Hirshberg  
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Calvin Alfred Lamdasaputra  
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Grand Junction, Colorado  
Bulverde, Texas  
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Wheat Ridge, Colorado  
Pagosa Springs, Colorado  
Littleton, Colorado  
Evergreen, Colorado  
San Antonio, Texas  
Tomball, Texas  
Richardson, Texas  
Castle Rock, Colorado  
Flint, Michigan  
Breaux Bridge, Louisiana  
Kota Bharu, Malaysia  
Omaha, Nebraska  
Thorton, Colorado  
Littleton, Colorado  
Fort Lupton, Colorado  
Dongying, China  
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Highlands Ranch, Colorado  
Kuwait City, Kuwait  
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Thornton, Colorado  
Katy, Texas  
Gretna, Nebraska  
Castle Rock, Colorado  
Huntley, Illinois  
Golden, Colorado  
Anchorage, Alaska  
Littleton, Colorado  
Jakarta, Indonesia  
Thornton, Colorado  
Fountain, Colorado  
Berkeley, California  
Belair, Texas  
Langfang, China  
Golden, Colorado  
Golden, Colorado  
Miri, Malaysia  
Seremban, Malaysia  
Tangerang, Indonesia  
Trujillo, Peru  
Fort Worth, Texas  
Aurora, Colorado  
Castle Rock, Colorado  
Bowling Green, Kentucky  
Spring, Texas  
Parker, Colorado  
Littleton, Colorado  
Golden, Colorado  
Pleasanton, California  
Seremban, Malaysia  
Kuala Lumpur, Malaysia  
Kuala Lumpur, Malaysia  
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Austi, Texas  
Fort Collins, Colorado  
Katy, Texas  
Kuala Lumpur, Malaysia  
Stanton, Michigan  
Tanjong Malim, Malaysia  

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Logan Matthew Smith  
Anssor Soussi Tamli  
Christopher Michael Spotts  
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Pribadi Agung Sulistyawan  
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Michael Thomas Tanner  
Andrew Clayton Thedinger***  
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Powhatan, Virginia  
Eden Prairie, Minnesota  
Miri, Malaysia  
Rockville, Maryland  
Ajman, United Arab Emirates  
Kuala Lumpur, Malaysia  
Omaha, Nebraska  
Larkspur, Colorado  
Colorado Springs, Colorado  
Colorado Springs, Colorado  
Canion City, Colorado  
Pueblo, Colorado  
Rawang, Malaysia  
Plymouth, Minnesota  
Cincinnati, Ohio  
Evergreen, Colorado  
Franktown, Colorado  
Conroe, Texas  
Littleton, Colorado  
Tangier, Morocco  
Indianapolis, Indiana  
Mt. Pleasant, Pennsylvania  
Bakersfield, California  
Argyle, Texas  
Colorado Springs, Colorado  
Golden, Colorado  
Jakarta, Indonesia  
Sham Alam, Malaysia  
Aurora, Colorado  
The Woodlands, Texas  
Midland, Texas  
Watford City, North Dakota  
Southlake, Texas  
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Stillwater, Oklahoma  
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GEOPHYSICS

Dr. Roelof K. Snieder, Interim Department Head

Geophysical Engineering, Bachelor of Science

Katherine Mary Biegel**  
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Joseph Timothy Halloran  
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Houston, Texas  
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Richmond, Texas  
Colorado Springs, Colorado  
Littleton, Colorado  
San Ramon, California  
Lincoln, Nebraska  
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Liam Daniel Mahoney | Westminster, Colorado
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Dr. Roderick G. Eggert, Interim Division Director

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Wilson Clark Martin, IV | Fort Worth, Texas
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William Alexander Thieme | Greenwood Village, Colorado
Sen Yang

COLLEGE OF APPLIED SCIENCE AND ENGINEERING
Dr. Michael J. Kaufman, Dean

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Dr. Angus A. Rockett, Department Head

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Chemical Engineering, Bachelor of Science
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Katherine May Cheng | Commerce City, Colorado
Michael Theodore Colucci, IV | Boulder, Colorado
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Devon William Fish | Littleton, Colorado
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PHYSICS
Dr. Jeff Squier, Department Head
Engineering Physics, Bachelor of Science
Robert G. Abbott
Rawan Abdulatif Alabdulhadi
David Michael Angst
Bixler R. Baker
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Hanna C. Barringer*
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***Summa cum Laude | **Magna cum Laude | Cum Laude
Robin James Coleman
Peter John Consalvi
Benjamin Michael Davis
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Mitchell Zane Ennis
Brennan William Fieck
Brittany Makayla-Hope Fleur
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Evergreen, Colorado
Highlands Ranch, Colorado
Morrison, Colorado
Aurora, Colorado
Fair Oaks Ranch, Texas
Colorado Springs, Colorado
Highlands Ranch, Colorado
Highlands Ranch, Colorado
Nichols Hills, Oklahoma
Even Green, Colorado
Lake Geneva, Wisconsin
Reno, Nevada
Redmond, Washington
Highlands Ranch, Colorado
San Antonio, Texas
Durango, Colorado
Littleton, Colorado
Park City, Utah
Pine, Colorado
Jacksonville, Oregon
Crested Butte, Colorado
Brighton, Colorado
Fort Lupton, Colorado
Hamilton, Massachusetts
Denver, Colorado
Littleton, Colorado
Colorado Springs, Colorado
Golden, Colorado
Fruita, Colorado
Highlands Ranch, Colorado
Parker, Colorado
Northern Lights, Netherlands
Loveland, Colorado
Englewood, Colorado
Findlay, Ohio
Colorado Springs, Colorado
Kansas City, Missouri
Pine, Colorado
Center, Colorado

Mathematics and Computer Science, Bachelor of Science
Sarah Ann De Nardis

CIVIL AND ENVIRONMENTAL ENGINEERING
Dr. John E. McCray, Department Head

Civil Engineering, Bachelor of Science
Dane Isao Arakawa
Jessie Adele Berndsen*
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Cohen Merrel Turner
Nicholas David Withers

Environmental Engineering, Bachelor of Science
Boshra Saleh Alfozwan
Parker Garrett Anderson
Paige Sheridan Becker
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Olivia Brooke Cain*
Mason William Hekili Haycock
Kristina Linn Johnson
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Erin Kim
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Columbine Valley, Colorado
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Fort Collins, Colorado
Centennial, Colorado
Etiwanda, California

Honolulu, Hawaii
Colorado Springs, Colorado
Colorado Springs, Colorado
Greeley, Colorado
Frederick, Colorado
Pueblo, Colorado
Littleton, Colorado
Chesterfield, Missouri
Longmont, Colorado
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Fayetteville, Arkansas
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Cypress, Texas
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San Leandro, California
Aurora, Colorado
Washington, D.C.
Denver, Colorado
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Davis, California
Norwood, Colorado
Lafayette, Colorado
Mission Viejo, California
Thorton, Colorado
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Lakewood, Colorado
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Westminster, Colorado

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Tecumseh, Oklahoma
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Colorado Springs, Colorado
Greeley, Colorado
Frederick, Colorado
Pueblo, Colorado
Littleton, Colorado
Chesterfield, Missouri
Longmont, Colorado
Fayetteville, North Carolina
Fayetteville, Arkansas
Denver, Colorado
Cypress, Texas
Saint Ignatius, Montana
San Leandro, California
Aurora, Colorado
Washington, D.C.
Denver, Colorado
Arvada, Colorado
Houston, Texas
Davis, California
Norwood, Colorado
Lafayette, Colorado
Mission Viejo, California
Thorton, Colorado
Denver, Colorado
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Newhall, California
Grand Junction, Colorado
Westminster, Colorado
**COMPUTER SCIENCE**

**Dr. Tracy K. Camp, Department Head**

**Computer Science, Bachelor of Science**

- Jose Rodolfo Acosta, Jr. - Brighton, Colorado
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- Amos Gwa - Aurora, Colorado
- Niles William Hacking** - Price, Utah
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- Aidan Michael Miller - Conifer, Colorado
- James Thomas Miller - Lakewood, Colorado
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- Zoe Elizabeth Nacol - Houston, Texas
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- Nicholas Rees Pamp - Jackson, Wyoming
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- Samuel Robert Schilling** - Littleton, Colorado
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- Jessica Cassandra Hernandez - New Castle, Colorado
- Connor Michael Holmes - Colorado Springs, Colorado
- Tanner Lee Howard - Bakersfield, California
- Austin J. Hutchison - Palisade, Colorado
- Yuliang Jin** - Shanxi, China
- Britanny Lee Kelly - Roseville, Minnesota
- Kenneth Steven Kooy - Aurora, Colorado
- Kevin Joseph Lannen*** - Fort Collins, Colorado
- Kenneth John Larson - Gipil, Colorado
- Khoa Dang Le - Northglenn, Colorado
- Xiaoyang Liu - Donging, China
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- Nathan Alan Pohl - Fort Collins, Colorado
- Matthew Michael Renwick - Arvada, Colorado
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- Joseph John Rushin, V - Centennial, Colorado
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- Marshall Alexander Trout - Brookshire, Texas
- Marcus Mackenzie Turner** - Aguilar, Colorado
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- Nicolas Luke Van Kooten - Parker, Colorado
- Christopher Arthur Willecke - Lakewood, Colorado
- Matthew David Wilson - Houston, Texas
- Reno LaGrand Wood - Santa Barbara, California
- Aaron Boone Zahn - Syracuse, Nebraska

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**ELECTRICAL ENGINEERING**

**Dr. Atef Z. Elsherbeni, Department Head**

**Electrical Engineering, Bachelor of Science**

- Christopher Mikhail Bishara - Longmont, Colorado
- Samuel Mordechai-chai Bismuth - Denver, Colorado
- Bradley David Bond - Commerce City, Colorado
- Aaron Michael Bonenberger - Fort Collins, Colorado
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- Patrick David Council* - Westminster, Colorado
- Vu Phong Dang* - Littleton, Colorado
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- Henry Alan Dau** - Golden, Colorado
- Sean Michael Dempsey - Thornton, Colorado
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- Briana Mae Farris - Arvada, Colorado
- Curt Jacob Feinberg*** - Westminster, Colorado
- Samuel Elliot Friedman*** - Denver, Colorado

- Jake Vincent Albers* - Fair Haven, New Jersey
- Alex Grady Albright** - Arvada, Colorado
- Yassine Ali Alhauwaj - Lakewood, Colorado
- Mohammed Khaled Almousa*** - Dhafran, Saudi Arabia
- Wassam Abdurrahim Alqahtani*** - Golden, Colorado
- Ali Mohammed Alsudairi, Sr.* - Alkhobar, Saudi Arabia
- Kekahu Christopher Aluli - Hauula, Hawaii
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- Hayley Bess Armstrong* - Highlands Ranch, Colorado
- Marcus Richard Banister - Brighton, Colorado
- Nicholas William Bean - Blaine, Washington
- Ryan Taylor Belanger - Spring, Texas
- Kacey Christina Bennett - Superior, Colorado
- Jeremy Michael Benson - Greeley, Colorado
- Ryan J. Blair - Littleton, Colorado
- James Eric Bloomfield** - Carlisle, Massachusetts
- Alec Michael Bogenschutz** - Woodlands, Texas

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***Summa cum Laude | **Magna cum Laude | *Cum Laude
Michael Stanley Bowman
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Roy William Brown
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Jessica Fenwick Burckel
Dakota Alan Burgerhoff
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Omaha, Nebraska
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Roanoke, Texas
Montrose, Colorado
New Hope, Pennsylvania
Seattle, Washington
Katy, Texas
Las Vegas, Nevada
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Lakewood, Colorado
Golden, Colorado
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Olathe, Kansas
Istanbul, Turkey
Eaton, Colorado
Windsor, Colorado
Corvallis, Oregon
Sedalia, Colorado
Denver, Colorado
Loveland, Colorado
College Station, Texas
Denver, Colorado
Nanning, China
Glenwood Springs, Colorado
Thornton, Colorado
Katy, Texas
Littleton, Colorado

COLORADO SCHOOL OF MINES
Roman Andrew Martinez  
Benjamin James Marum  
Cody Joseph Marvel  
David Mboko  
Jacob Edward McClean  
Dallas C. McCoy  
Thomas Warren McWhirter  
Zachary Vincent Melphy  
Gavin Welz Meyer*  
Madison Leigh Millard  
Peter Andrew Mladinich  
Mohd Zaharim Bin Mohd Hashim  
Mitchell Brian Moore  
Joshua Mitchell Morand***  
Skyler Austin Morris*  
Joshua V. Morsicato  
Joshua C. Nelson  
Caityn Elizabeth Neuheardt  
Stephen Joseph Newton  
Duc Anh Nguyen**  
Tailor Paige Noehring  
Ariel Ruth Nolte  
Madison Shea Northrup  
Nicholas J. Novack**  
Taishiro Okazaki  
Braiden Talbot Ods  
Jacob Austin Oppenheim  
Edward Scott Pancost, Jr.  
Clinton Parapat  
Jeniewe Katherine Parker*  
Joseph George Pauza, V*  
Evon Douglas Person  
Adam David Peszek***  
Colin Garrett Peter***  
Emma Lee Petton Counelis  
Christopher Jacob Pfutzner  
Marie Lillian Pisciotta  
Evon Atkinson Powell  
Gary Channing Powers  
Tait Dillon Priser  
Justin Charles Ray*  
Parker, Colorado  
Windsor, Colorado  
Lakewood, Colorado  
Lakewood, Colorado  
Spring, Texas  
Lakewood, Colorado  
Tucson, Arizona  
Littleton, Colorado  
Boulder, Colorado  
Lakewood, Colorado  
Petaling Jaya, Malaysia  
Littleton, Colorado  
Elbert, Colorado  
Lakewood, Colorado  
Greeley, Colorado  
New Castle, Colorado  
Sugar Land, Texas  
Boulder, Colorado  
Lakewood, Colorado  
Parker, Colorado  
Lakewood, Colorado  
Albuquerque, New Mexico  
Houston, Texas  
Highlands Ranch, Colorado  
Aurora, Colorado  
Denver, Colorado  
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Parker, Colorado  
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Centennial, Colorado  
Grand Junction, Colorado  
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Sterling, Colorado  
Westminster, Colorado  
Arvada, Colorado  
La Sall
The **American Institute of Chemists Award**

**Jacob Wilson**

The **Robert A. Baxter Award** is presented for meritorious work in chemistry.

**Lisa Gay**

The **Charles N. Bell, 1906, Award**, provided for by Mr. Bell, is a Brunton transit, awarded in mining for completing a course in mining and showing the most progress in schoolwork during the entire period for which the course is given.

**Ryan Burkholder**

The **Honorable D. W. Brunton Award**, provided for by Mr. Brunton, is awarded for meritorious work in mining.

**Mathieu Gauthier-Cote**

The **Brunton Award in Geology** is awarded in recognition of the highest scholastic achievement and interest in and enthusiasm for the science of geology.

**Jacob Adamson**

**Rachel Bierna**

The **Clark B. Carpenter Award** is presented to the graduating senior in mining or metallurgy who, in the opinion of the senior students in mining and metallurgy and the professors in charge of the respective departments, is the most deserving of this award.

**Paige Stock**

**Justin Zandt**

The **Mary & Charles Cavanaugh Award**, presented in metallurgy, is determined by scholarship, professional activity and participation in school activities.

**Kerry McQuaid**

The **Colorado Engineering Council Awards** are presented for excellence in scholarship, high integrity and general engineering ability.

**Taryn Huber**

**Michelle Pedrazas**

**Micaela Pedrazas**

The **Professor Everett Award**, provided for by Frank Ausanka ’42, in honor of James R. Everett, an outstanding former faculty member in mathematics at Mines, is presented to a graduating senior in mathematics who demonstrates scholarship, leadership, community service and the potential for the innovative application of mathematics to mineral engineering.

**Jessica Deters**

The **Outstanding Senior Research Award in Chemistry** is awarded to a student who demonstrates superior performance and creativity in undergraduate research.

**Kevin Bierbaum**

The **Chemistry Faculty Award** is given yearly to the student exhibiting superior performance as chosen by the faculty.

**Lyndsey Babcock**

The **Outstanding Chemistry Service Award** is presented to the graduating senior exhibiting superior performance in academics and service to the department.

**Jana Starks**

The **Faculty Choice Award in Computer Science** is given to a top graduating senior who helped improve computer science at Mines.

**Rachael Barnett**

The **Cecil H. Green Award** is given to the graduating senior in geophysical engineering who, in the opinion of the Department of Geophysics, has the highest attainment in the combination of scholastic achievement, personality and integrity.

**Hanna E. Flamme**

The **John P. Hager Award Endowed Scholarship Fund in Metallurgy** is given as a needs-based scholarship to students specializing in extractive metallurgy of base materials or other areas of extractive metallurgy.

**Sara Viau**

The **Neal J. Harr Memorial Outstanding Student Award**, provided by the Rocky Mountain Association of Geologists, is presented for scholastic excellence in the study of geology with the aim of encouraging future endeavors in the earth sciences.

**Anna Gallagher**

The **Harrison L. Hays, 1931, Award** is presented in chemical and petroleum refining for demonstrating scholarship, personality and integrity of character and the general potentialities of a successful industrial career.

**Carley Lauer**

The **H. L. Hazen Prize in Process Metallurgy** is presented to the graduating senior who shows exceptional potential for a career in process metallurgy based upon demonstrated interest, academic achievement and extracurricular activities.

**Giselle Krebs**

The **John C. Hollister Award** is presented to the most deserving students in geophysics and is not based solely on academic performance.

**Hubbell W. Rowe**

**Eric K. Bunzli**

The **Henry W. Kaanta, 1915, Award** is presented for the outstanding paper on a laboratory procedure or experimental process written by a graduating senior majoring in extractive metallurgy or mineral processing.

**Marshall Boyton**

The **Maryanna Bell Kafadar Award** is presented to the graduating senior who has excelled in humanities courses and humanities-related activities.

**Jessica Deters**

The **Guy T. McBride Jr. Honors Program in Public Affairs for Engineers Award** is presented to the senior in the McBride Honors Program whose scholarship, character and personality best exemplify the ideals of the program as determined by the committee of tutors.

**Trinity Wilson**

The **McBride Honors Program Award for Campus Citizenship** is presented to a student who has made a significant and positive impact on the campus community.

**Jessica Deters**

The **McIver-Metallurgical and Materials Engineering Faculty Award** is presented by the faculty of the department to the graduating senior who, by participation in and contribution to campus life and by academic achievement, has demonstrated those characteristics of a well-rounded graduate that Mines aspires to develop in its students.

**Abby Mikias**
The **George T. Merideth Award**, established in 2012 by Keith A. ’52 and Mary Ann Kvenvolden to carry forward the legacy of former Mines Geophysics Professor George T. Merideth, is presented to outstanding graduating geophysics students who have demonstrated academic excellence, community involvement and potential for leadership in earth science engineering.

**Iker A. Madera**

The **Old Timers’ Club Award** is presented to the graduating senior who, in the opinion of the Department of Mining Engineering, has shown high academic standing in coal mining engineering and potential for the coal industry.

**Dulguun Tseng Ayush**

The **Outstanding International Undergraduate Award** is presented to the international student who has demonstrated scholastic achievement.

**Omar Almuhlum**

The **Outstanding Student Service Award** is presented by the Division of Student Life to the student(s) who, during their tenure at Mines, outside and above their academic role, vigorously participated in activities or projects for the greater benefit of their peers and community to promote excellence and well-being.

**Edgar Crockett**

**Dana Steiner**

The **Pearson Potential Award** is given to students in the Department of Chemical and Biological Engineering who have shown emerging leadership and engineering potential in hands-on challenges such as Summer Field Session.

**Chase Li**

**Genevieve Trowbridge**

The **Thomas Philipose Outstanding Senior Award** is awarded to the senior in the Guy T. McBride Jr. Honors Program in Public Affairs whose intellectual development, scholarship, leadership and character best exemplify the ideals of the program.

**Manju Murugesu**

The **Physics Faculty Distinguished Graduate Award** is presented by the faculty of the department to graduating seniors with exceptionally high academic achievement in physics.

**Ian Kramer**

**Connor Natzke**

The **George R. Pickett Memorial Award** is presented on the basis of demonstrated interest and accomplishments in the study of borehole geophysics.

**Whitney H. Schultz**

The **Phillip R. Romig Award** is presented to the graduate who best exemplifies excellence in the acquisition of field geophysical observations.

**Ashton Krajnovich**

The **Arthur B. Sacks Award for Excellence in Environmental Sustainability** recognizes graduate or undergraduate students who have excelled in studying and raising awareness of environmental sustainability.

**Katie Schumacher**

The **Ryan Sayers Memorial Award** recognizes the outstanding academic achievements of a graduating student, majoring in engineering physics and/or applied mathematics and statistics, who has performed significant undergraduate research.

**Anastasia Gladkina**

The **Selim Memorial Scholarship** is presented by the faculty of the Department of Chemical and Biological Engineering to a graduating student who promises great success in graduate school.

**Kelsey Hopkins**

The **John Steele Award**

**Samuel Drescher**

The **William D. Waltman Award** is presented to the graduating seniors who have consistently demonstrated the utmost integrity, scholarship and citizenship in and outside of the classroom throughout their collegiate career.

**Brittany Marshall**

**Colton Witherell**

**OUTSTANDING GRADUATING SENIOR AWARDS**

**OUTSTANDING GRADUATING SENIOR AWARDS**

**Applied Mathematics and Statistics**

**Nicholas Kropowicz**

**Computational and Applied Mathematics**

**Carrie Krolovec**

**Civil Engineering**

**Melanie Stephenson**

**Environmental Engineering**

**Michelle Schwartz**

**Chemistry**

**Jana Starks**

**Chemical and Biochemical Engineering**

**Katherine Decker**

**Chemical Engineering**

**Eric Hale**

**Computer Science**

**Stephen Tracy**

**Economics and Business**

**William Thieme**

**Electrical Engineering**

**Cody Clayton**

**Geological Engineering**

**Rachel Becker**

**Geophysics**

**Samuel W. Courville**

**Mechanical Engineering**

**Brittany Marshall**

**Metallurgical and Materials Engineering**

**Ian Brummel**

**Mining Engineering**

**Lizeth Diaz**

**Petroleum Engineering**

**Krista Hickey**

**Physics**

**Martin Ritter**

**DUAL DEGREE RECIPIENTS**

**Michael Stanley Bowman**

**Electrical Engineering and Mechanical Engineering**

**Henry Alan Dau**

**Electrical Engineering and Computer Science**

**Briana Mae Farris**

**Electrical Engineering and Mechanical Engineering**

**Lisa Montana Gay**

**Chemical Engineering and Chemistry**

**Harrison Ryan Krantz**

**Computer Science and Physics**

**Wilson Clark Martin, IV**

**Economics and Petroleum Engineering**

**Joshua C. Nelson**

**Electrical Engineering and Mechanical Engineering**

**Michael Thomas Tanner**

**Economics and Petroleum Engineering**

**Nicholas J. Zustak**

**Chemical Engineering and Computer Science**
Mines awards the academic honors designations of summa cum laude, magna cum laude and cum laude. The honor cords worn by students earning the highest designation, summa cum laude, are royal blue and orange. Magna cum laude is represented by light blue and orange. Cum laude is represented by silver and orange. Honor cords and stoles are also worn to signify involvement in honor societies and scholars programs and recognition of international students.

**SCHOLARS AND SPECIAL PROGRAMS**

**HARVEY SCHOLARS**
Many Mines students benefit from scholarships provided by our generous alumni and friends. The Harvey Scholars program provides full tuition for four years.

Katherine Biegel  
Katie Gann  
Rachel Gregg  
Iris Hill  
Nolan Hurd  
Emily Knott  
Michael Kossyrev

Kylen McClintock  
Santana Sanchez  
Logan Schuelke  
Katie Schumacher  
Christopher Spotts  
Travis Terrell Ramos

**BOETTCHER SCHOLARS**
Jacob Adamson  
Liam McGrai

**MCBRIDE HONORS PROGRAM**
The Guy T. McBride Honors Program in Public Affairs allows students to explore the interfaces between their areas of technical expertise and the humanities and social sciences, resulting in a minor in public affairs with the honors distinction.

Katherine Biegel  
Jessica Deters  
Melodie Glasser  
Emily Knott  
Chase Li

Manju Murugesu  
Madison Northrup  
Logan Schuelke  
Trinity Wilson

**BLUE KEY HONOR SOCIETY**
Recognizes students with achievements in service, scholarship and activities.

Matt Balderston  
Peter Consalvi  
Amanda Davis  
Eric Hale  
Grant Jacobsen  
Lydia Kellogg  
Chase Li  
Brittany Marshall  
Stephanie Martella  
Brennnae McVey  
Ryan Morningstar

Faith Oehlerking  
Taishiro Okazaki  
Micaela Pedrazas  
Michelle Pedrazas  
Sam Ramsay  
Logan Schuelke  
Nabeel Sheikh  
Travis Terrell Ramos  
Thomas Wagener  
Colton Witherell

**ORDER OF OMEGA**
Recognizes outstanding leadership in fraternity and sorority systems.

Amy Young  
Stephanie Panza  
Kacey Ruona  
Molly Clark  
Kristen Smith  
Grant Jacobsen  
Katherine Decker

Kacey Bennett  
Peyton Gibson  
Lindsey Hart  
Nicole Pisciotta  
Jennifer Tippetts  
Carley Lauer  
Jenna Parker

**TAU BETA PI**
National Honor Society of Engineers

Skyler Morris  
Connor Natzke  
Robert Nelson  
Jacob Overstreet  
Jeneviee Parker  
Micaela Pedrazas  
Michelle Pedrazas  
Adam Peszek  
Maurice Polycarp  
Dustin Rhodes  
Martin Ritter  
Michael Schneider  
Logan Schuelke  
Michelle Schwartz  
Grant Sheridan  
Even Shigaya  
Brandon Springer  
Gabe Stuntz  
Zachary Swanson  
Nicholas Taylor  
Marcus Turner  
Jesse van der Vorst  
Evelyn Von Nieda  
Thomas Wagener  
Luke Waguespack  
Jerred Wassgren  
Michael Wrona  
Abigail Zimmerman  
Jason Ziolo  
Muhammad Hazwan  
Afiq Zulhaimi

**MILITARY COMMISSIONS**
The following students will be commissioned in the United States Air Force:

Jacob A. Neumann  
Gary S. North

The following student will be commissioned in the United States Army:

Luke I. Brown

**SENIOR GIFT**
Thank you, Class of 2017, for embracing the tradition of a senior gift, and supporting and inspiring the next generation of Orediggers. This year’s Senior Gift program totaled about $12,000 to support student organizations and activities for which they are passionate.

Seniors supported Blue Key Honor Society, the ASCE Student Chapter, Club Water Polo, the Mines Philanthropy Council, The Mines Fund and Mines Without Borders. Leadership-level donors included Matthew Balderston, Peyton Gibson, Jon Paz, Teresa Pilato and Logan Schuelke.
Significantly, it is a key course that helps set the stage in effective careers across all disciplines that Mines offers. Careful consideration helps to ensure that all students launch in terms of the pedagogy that is used in the course. Such requires meticulous stewardship and thoughtful consideration student. This is a course that serves the entire university and Mechanics,” one of the cornerstone courses for any Mines Dr. Callan has assumed a leadership role in “Introductory Teaching Professor of Physics Dr. Kristine Callan achievement.

Presented to recognize superior teaching at the undergraduate level over a period of several years and number of teaching recognitions both at Penn State and Mines. At Mines, she teaches courses in groundwater engineering, hydrogeology, Matlab for earth science applications and geostatistics. Along with Dr. Sarah Hitt, Dr. Singha has also team-taught a McBride course, “Water, Energy and the West.” She is an expert in theorizing hydrologic processes by integrating geophysical techniques, hydrologic tools and mathematical simulation to improve predictive models. She has participated in numerous successful grants, including a prestigious NSF CAREER Award. She has published over 41 peer-reviewed articles, 18 with her students as first authors, showing exemplary mentorship of graduate students. Dr. Singha is nationally and internationally known in her field, as demonstrated by the number of invitations to speak, review and serve in high-profile venues, journals and committees, including the Board of Directors for the Consortium for the Advancement of Hydrologic Sciences (funded by NSF).

Dr. Kamini Singha
Professor of Geology and Geological Engineering

Dr. Singha joined the Department of Geology and Geological Engineering in 2012. Since joining Mines, Kamini has excelled in both teaching and scholarship. She is an accomplished professor, averaging a score of 4.8 out of 5 faculty evaluation, well above the departmental average. In her previous position at Pennsylvania State University, Dr. Singha received teaching evaluations of 6.5 out of 7. These efforts have earned Dr. Singha a number of teaching recognitions both at Penn State and Mines. At Mines, she teaches courses in groundwater engineering, hydrogeology, Matlab for earth science applications and geostatistics. Along with Dr. Sarah Hitt, Dr. Singha has also team-taught a McBride course, “Water, Energy and the West.” She is an expert in theorizing hydrologic processes by integrating geophysical techniques, hydrologic tools and mathematical simulation to improve predictive models. She has participated in numerous successful grants, including a prestigious NSF CAREER Award. She has published over 41 peer-reviewed articles, 18 with her students as first authors, showing exemplary mentorship of graduate students. Dr. Singha is nationally and internationally known in her field, as demonstrated by the number of invitations to speak, review and serve in high-profile venues, journals and committees, including the Board of Directors for the Consortium for the Advancement of Hydrologic Sciences (funded by NSF).

THE MENDENHALL PRIZE
The Mendenhall Prize is awarded by the Department of Geophysics to the department’s outstanding graduate student.
Andrea Balza

THE DR. BHAKTA RATH AND SUSHAMA RATH RESEARCH AWARD recognizes a Colorado School of Mines doctoral graduate whose thesis demonstrates the greatest potential for societal impact.
Vinh Nguyen (Chemical Engineering)
Michael Wagner (Mechanical Engineering)

RATH AWARD FINALISTS
Benjamin Lloyd Johnson (Operations Research)
Nicolas Shugart (Nuclear Engineering)
Henok Yemam (Chemistry)
Evan R. Jones (Geology)

THE DEAN’S EXCELLENCE AWARD
Recognizes a full-time tenured or tenure-track academic faculty member who has demonstrated significant and meritorious achievement in teaching and scholarship.

Dr. Kamini Singha
Professor of Geology and Geological Engineering

Dr. Singh joined the Department of Geology and Geological Engineering in 2012. Since joining Mines, Kamini has excelled in both teaching and scholarship. She is an accomplished professor, averaging a score of 4.8 out of 5 faculty evaluation, well above the departmental average. In her previous position at Pennsylvania State University, Dr. Singha received teaching evaluations of 6.5 out of 7. These efforts have earned Dr. Singha a number of teaching recognitions both at Penn State and Mines. At Mines, she teaches courses in groundwater engineering, hydrogeology, Matlab for earth science applications and geostatistics. Along with Dr. Sarah Hitt, Dr. Singha has also team-taught a McBride course, “Water, Energy and the West.” She is an expert in theorizing hydrologic processes by integrating geophysical techniques, hydrologic tools and mathematical simulation to improve predictive models. She has participated in numerous successful grants, including a prestigious NSF CAREER Award. She has published over 41 peer-reviewed articles, 18 with her students as first authors, showing exemplary mentorship of graduate students. Dr. Singha is nationally and internationally known in her field, as demonstrated by the number of invitations to speak, review and serve in high-profile venues, journals and committees, including the Board of Directors for the Consortium for the Advancement of Hydrologic Sciences (funded by NSF).

THE MINES TEACHING AWARD
Presented to recognize superior teaching at the undergraduate level over a period of several years and to provide encouragement and incentive for teaching achievement.

Dr. Kristine Callan
Teaching Professor of Physics

Dr. Callan has assumed a leadership role in “Introductory Mechanics,” one of the cornerstone courses for any Mines student. This is a course that serves the entire university and requires meticulous stewardship and thoughtful consideration in terms of the pedagogy that is used in the course. Such careful consideration helps to ensure that all students launch effective careers across all disciplines that Mines offers. Significantly, it is a key course that helps set the stage in terms of building each student’s critical thinking skills. Dr. Callan provides significant service to the institution and students by leading efforts to provide a pathway for Mines students to pursue careers in secondary education. To date, this program has enrolled about 40 Mines students in courses taught at Mines by University of Northern Colorado faculty. In addition, Dr. Callan has been involved in two NSF grants, including one for $1.2 million, on which she is the principal investigator. The Mines share of her fundraising activities is just over $1 million and includes awarding $640,000 in scholarships to Mines undergraduates committed to pursuing a career in secondary STEM teaching.

Dr. Stephen Pankavich
Associate Professor of Applied Mathematics and Statistics

Since joining Mines in Fall 2012, Dr. Pankavich has taught eight different courses in the Department of Applied Mathematics and Statistics, including six undergraduate courses and two graduate courses. Dr. Pankavich has developed two new courses, including “Introduction to Scientific Computing” and “Applied Numerical Methods.” He consistently earns teaching evaluations above the department and college averages, with a score of 4.57 out of 5 across all courses.

BOARD OF TRUSTEES OUTSTANDING FACULTY AWARD
This award recognizes a faculty member who has made a significant positive impact on student learning with special emphasis on teaching outside the classroom.

EMERITUS FACULTY
Distinguished faculty members announced their retirement during the past academic year and have been awarded Emeritus Status. Mines’ University Emeritus faculty have demonstrated exemplary service through a distinguished teaching career and achievement of national and international recognition through outstanding scholarship.

Dr. Graham A. Davis, Professor of Mineral Economics
Dr. Murray W. Hitzman, Professor of Geology and Geological Engineering
Dr. Frank V. Kowalski, Professor of Physics
Dr. P. Craig Taylor, Professor of Physics
Dr. J. Douglas Way, Professor of Chemical and Biological Engineering
John M. Poate, PhD
Senior Vice President Emeritus, Colorado School of Mines

John M. Poate (PhD – Australian National University, 1967) is emeritus senior vice president of research at Colorado School of Mines and editor-in-chief of Applied Physics Reviews. He previously served as a Harwell Fellow of the United Kingdom Atomic Energy Authority, head of the Silicon Processing and Interface Physics Research Departments at Bell Laboratories, dean of the New Jersey Institute of Technology and chief technology officer of Axcelis Technologies.

Dr. Poate’s research and management interests reflect his 50-year career in the physical and materials sciences. He has published extensively in several areas of nuclear and solid-state physics, materials science and engineering with over 300 published papers, and is editor of four books and seven conference proceedings. He has 12 patents. In the policy arena, his interests involve renewable energy, sustainability and the implications of climate change.

Professional Activities and Awards
Dr. Poate is a Fellow of the American Physical Society (APS), the Materials Research Society (MRS) and the National Academy of Inventors. He served as president of the MRS and chair of the APS Division of Materials Physics.

He has served on advisory councils for NATO, U.S. and overseas universities, the National Science Foundation, National Research Council and Department of Energy and the board of the National Renewable Energy Laboratory. He currently serves as chair of the Director’s Review Committee for Physical and Life Sciences at Lawrence Livermore National Laboratory, the board of the Energy Change Institute of the Australian National University, the South Dakota School of Mines Advisory Board, the CSU Energy Institute External Advisory Board and the Purdue University Strategic Research Advisory Council.

His awards include the John Bardeen Award of The Minerals, Metals and Materials Society and an honorary doctorate of engineering from Colorado School of Mines.
John Coors, PhD  
Director and Chairman of the Board, CoorsTek

Dr. John Coors has served as director and chairman of the board of CoorsTek since January 2000, and began as president in October 1998. During his tenure, CoorsTek has grown to become the world’s largest engineered ceramics manufacturer—serving more than 10,000 customers worldwide.

Dr. Coors began his career with Coors Brewing Company in 1979, holding a variety of R&D, engineering, human resources, project management and plant manager roles—ultimately serving as vice president of global brewing operations until he departed the company in 1992.

He then ventured into the emerging solar industry as president of Golden Photon, a developer and manufacturer of photovoltaic solar modules. He became CEO of Golden Genesis Company, an integrator of remote solar power systems—growing the company from a small start-up to the largest public solar electric integrator in the country before selling the business in 1998.

Dr. Coors holds a bachelor’s degree in chemical engineering from Colorado School of Mines, a master’s degree in biochemistry from the University of Texas and a doctorate in engineering from the Technical University of Munich.

Dr. Coors currently serves as a member of the Colorado School of Mines Foundation Board of Governors. Dr. Coors is also a founding member of One Thousand & One Voices, a private capital fund focused on sub-Saharan Africa. He and his wife, Sharna, have ten children, including six adopted children of diverse nationalities. Five of their children currently work at CoorsTek.
A public research university with a global reach, engaging innovative thinkers to create solutions for today’s earth, energy and environmental challenges.

A historic public research university with a specialized STEM mission, known globally for producing top scientists and engineers and for its unparalleled expertise in subjects related to earth, energy and the environment.

Colorado School of Mines is a highly selective institution, having the highest admissions standards of any public university in Colorado and among the highest of any public university in the nation. It seeks students who are academically accomplished, enjoy challenges, are team players and who will be engaged members of the Mines community.

Throughout its history, Mines has delivered a unique brand of practical and professional education. Its programs combine rigor, hands-on experiences, collaborative problem-solving and professional work experience. Additional professional development and exploration occur through the 200-plus clubs and organizations on campus.

Students and faculty work together at Mines to innovate and advance the frontiers of knowledge in areas that are critical to society, including unconventional natural gas, solar materials, fuel cells, biofuels, advanced water treatment, gas hydrates, critical minerals, geothermal energy, subsurface hydrology, ferrous metallurgy, subsurface characterization, intelligent geosystems and high-performance computing.

Mines students graduate with a strong sense of integrity, resilience, confidence in tackling new problems, the ability to work in collaborative environments, an enhanced sense of responsibility to promote positive change in the world and pride in their Mines degree.

Home of the Mines campus since 1874, the picturesque town of Golden offers Colorado’s famous outdoor adventures as well as access to the many attractions of nearby Denver.
ACADEMIC REGALIA: CAPS, GOWNS AND HOODS

The academic dress worn by today's graduates reflects a tradition begun in the late 12th century, when universities were taking form, and codified in the U.S. in 1895 under the Academic Costume Code. Originally the dress may have had a practical purpose—to keep the student warm in unheated buildings—but today it is ceremonial and divided into three parts: caps, gowns and hoods.

The traditional cap is the mortarboard with colored tassels to identify the graduate's discipline or field of study. Doctors of Philosophy wear a gold tassel, Masters of Science a yellow tassel, Masters of Engineering an orange tassel and Bachelors of Science a navy and silver commemorative tassel.

Bachelor's and master's gowns are untrimmed (though women may wear white colors with a bachelor's gown), but doctor's gowns are faced down the front with velvet and trimmed with three velvet bars across the sleeves. The velvet facing and bars are black or the color of the field of study. Hoods are also black. The doctor's hood is four feet in length, and the master's 3 and 1/2 feet. Colorado School of Mines hoods are lined with silver and blue, the official school colors. The velvet border on the hood, which is three and five inches wide for the master's and doctor's degree, respectively, identifies the field of study to which the degree pertains. Colorado School of Mines hoods have yellow velvet borders for Master of Science, orange velvet borders for Master of Engineering and blue velvet borders for Doctor of Philosophy.

CONFERRRED DEGREES

Departmental degrees are awarded at Colorado School of Mines according to the order in which the department or program originally conferred a degree, dating back to the first Mines commencement in 1883, at which two mining degrees were awarded. The College of Engineering and Computational Sciences, established in 2011, offers the newest degrees.

SILVER DIPLOMAS

While the degrees granted by Colorado School of Mines are valuable and unique, so are the diplomas themselves. The Mines silver diploma is a long-standing tradition dating back to 1933, when Charles A. Hull engraved a silver diploma as a gift for his son, a recent graduate. The diploma caught the eye of then-President Melville F. Coolbaugh, who asked that silver diplomas be made for all Mines graduates.

Starting with the commencement of 1934, Mines began issuing silver diplomas, measuring 5 by 6 inches and etched in pure sterling silver. Creating these diplomas required two workers spending six weeks (or 500 hours) making 19 delicate etchings in each diploma.

Today the tradition of metal diplomas continues, with all students receiving a silver/nickel-plated diploma upon graduation from Mines.
THE BOOK: *DE RE METALLICA*
Colora School of Mines Faculty Senate President Dinesh Mehta leads the academic portion of the commencement procession, carrying a replica of the 16th century treatise *De Re Metallica*. Widely regarded as the seminal text on mining and the science of metallurgy, this historic volume serves as a symbol of the body of knowledge shared by Mines’ faculty and students.

The book is placed on a stand at the front of the stage. Its opening marks the start of the commencement ceremony and also recalls the beginning of the students’ education at the school. The ceremony’s end is signified by the closing of the book.

A first edition of *De Re Metallica*, written by Georg Bauer under the pseudonym Agricola and printed in 1556, resides in the vault of Mines’ Arthur Lakes Library, as does a subsequent edition printed in 1621. In addition to these original texts, the library also houses several copies of Herbert Hoover’s 1912 translation from Latin, including one signed by the nation’s 31st president and his wife, Lou. Hoover contributed the introduction and lengthy footnotes. He visited mine sites and carried out Agricola’s formulas in laboratories to check the translations. Issued in a limited edition, it quickly became a collector’s item. Of the 3,000 copies printed, more than half were given free to mining engineers and students.

UNIVERSITY MACE
The Colorado School of Mines Faculty Senate Distinguished Lecturer, Dr. Tracy Camp, carries the mace, which has a rich history as a symbol of authority going back to the 13th century. In commencement processions, the mace is carried before the president and the dignitaries composing the platform party. The Mines Mace stands 4 feet 8 inches high and weighs 16 pounds. The core is a rosewood staff, covered by fitted brass and cast bronze, silver-plated and topped by Mines’ mascot, Blaster. Mines Professor Emeritus Robert Taylor executed the design and Mr. Emil Dangreau produced the finished standard with the official school seal photoengraved on the base of the staff.

PRESIDENTIAL MEDALLION
The silver medallion, worn only by the Colorado School of Mines president, was designed by Rex Bull, an emeritus professor in the George S. Ansell Metallurgical and Materials Engineering Department and cast by students using silver donated by the Colorado School of Mines Alumni Association. It was first used at the inauguration of George S. Ansell as the 13th president of the school on February 8, 1985.
The Mines Alma Mater, to the tune of “Aura Lee,” is played during the Commencement Recessional to acknowledge graduates’ transition from Mines students to Mines alumni.


**Raise your voices engineers, your devotion sing**

**To the greatest School of Mines, let the chorus ring**

**Hail to thee, C.S.M. to our hearts most dear**

**Ev’ry miner lauds name and ev’ry engineer.**

**Honor, glory to thy name, these we pledge anew**

**While we live to sing thy fame, Alma Mater true**

**Hail to thee School of Mines, silver and blue**

**Ev’ry Miner sings thy praise, Alma Mater true.**

Thank you to Swire and Coca-Cola for donating water for Commencement!

Aerial photos by Billy Ciccone, Class of 2018