



**MontanaTech**

# COURTNEY A. YOUNG, PhD, QP

**LEWIS S. PRATER DISTINGUISHED PROFESSOR  
METALLURGICAL AND MATERIALS ENGINEERING**

**JULY 2020**

## **EDUCATION**

**PH.D. METALLURGICAL  
ENGINEERING, UNIVERSITY  
OF UTAH, COLLEGE OF  
MINES AND EARTH  
SCIENCES, SALT LAKE CITY,  
UT, 84112, JUNE, 1994**

**M.S. MINING AND  
MINERALS ENGINEERING,  
VIRGINIA POLYTECHNIC  
INSTITUTE AND STATE  
UNIVERSITY, BLACKSBURG,  
VA, 24061, SEPTEMBER,  
1987**

**B.S. MINERAL  
PROCESSING ENGINEERING,  
MONTANA COLLEGE OF  
MINERAL SCIENCE AND  
TECHNOLOGY, BUTTE, MT,  
59701, MAY, 1984**

## **REGISTRATION**

**Q.P. MMSA – MINING  
& METALLURGICAL SOCIETY  
OF AMERICA, 2006**

## **AREAS OF EXPERTISE**

- **PROCESS ENGINEERING**
- **MINERAL SEPARATIONS**
- **FLOTATION**
- **EXTRACTIVE METALLURGY**
- **HYDROMETALLURGY**
- **MINING SUSTAINABILITY**
- **REMEDIATION**
- **WASTE MINIMIZATION**
- **SURFACE CHEMISTRY**
- **ELECTROCHEMISTRY**
- **ANALYSIS/SPECTROSCOPY**
- **CRITICAL MATERIALS**

**DR. COURTNEY YOUNG** IS A GRADUATE OF THREE PREMIERE MINERAL/COAL PROCESSING AND EXTRACTIVE METALLURGY INSTITUTIONS. HIS SPECIALTIES IN MINERAL PROCESSING AND EXTRACTIVE METALLURGY INCLUDE MINERAL CHARACTERIZATION AND ANALYSIS, FLOTATION, PHYSICAL SEPARATIONS, LEACHING, CYANIDE, URANIUM, BASE AND PRECIOUS METAL PROCESSING, AND ADSORPTION. HE ENJOYS APPLYING THOSE TECHNOLOGIES TO SECONDARY RESOURCE RECOVERY, CRITICAL MATERIALS, AND MINING SUSTAINABILITY INCLUDING WASTE PROCESSING, WATER REMEDIATION, TAILINGS AND SLAGS RECYCLING, DUST AND SPENT POT-LINER TREATMENT, ENERGY REDUCTION, AND FLOWSHEET DEVELOPMENT.

WHILE A FACULTY MEMBER FOR 27.5 YEARS, COURTNEY HAS TAUGHT NUMEROUS COURSES BUT THE LATEST INCLUDE INTRODUCTION TO MINERAL PROCESSING, HYDROMETALLURGY AND AQUEOUS PROCESSING, FIRE ASSAY, MATERIALS HANDLING DESIGN, FLOTATION, ENERGY RESOURCES (MOSTLY COAL AND URANIUM), PRECIOUS METAL RESOURCES (MOSTLY GOLD), INTERNSHIP AND SEMINAR. DURING THIS TIME, DR. YOUNG HAS WORKED ON NUMEROUS RESEARCH PROJECTS WITH VARIOUS FUNDING SOURCES, PARTICULARLY MINING COMPANIES AND OFTEN IN COLLABORATION WITH THE CENTER FOR ADVANCED MINERAL, METAL AND MATERIALS PROCESSING (CAMP).

## **PROFESSIONAL EXPERIENCE**

- |              |   |
|--------------|---|
| 2001-PRESENT | TENURED PROFESSOR, METALLURGICAL & MATERIALS ENGINEERING, MONTANA TECH, BUTTE, MT |
| 1998-2019    | DEPARTMENT HEAD, METALLURGICAL & MATERIALS ENGINEERING, MONTANA TECH, BUTTE, MT   |
| 1996-2001    | ASSOCIATE PROFESSOR, MONTANA TECH, BUTTE, MT                                      |
| 1995-1996    | ASSISTANT PROFESSOR, MONTANA TECH, BUTTE, MT                                      |
| 1994-PRESENT | ACADEMIC FELLOW, CAMP, BUTTE, MT  |
| 1994         | RESEARCH ASSISTANT PROFESSOR AND CAMP POSTDOC, MONTANA TECH, BUTTE, MT            |
| 1993         | RESEARCH FELLOW AND POSTDOC, MINE WASTE TECHNOLOGY PROGRAM (MWTP), BUTTE, MT      |

## **PROFESSIONAL AFFILIATIONS**

- |              |  |
|--------------|--|
| 2006-PRESENT | MINING & METALLURGICAL SOCIETY OF AMERICA (MMSA), QUALIFIED PROFESSIONAL MEMBER SINCE 2006 |
| 1999-PRESENT | AMERICAN EXPLORATION AND MINING ASSOCIATION (AEMA), TRUSTEE 2015-2018                      |
| 1998-PRESENT | MONTANA MINING ASSOCIATION (MMA), HONORARY MEMBER  |
| 1988-PRESENT | THE MINERALS, METALS AND MATERIALS SOCIETY (TMS), LEAD ACCREDITING SOCIETY                 |
| 1982-PRESENT | SOCIETY FOR MINING, METALLURGY AND EXPLORATION (SME), DISTINGUISHED MEMBER SINCE 2017      |

## PROFESSIONAL RECOGNITION

### PATENTS

8500847 (U.S.A.), AU2011201892 (AUSTRALIA), AND CA2738382 (CANADA), METHOD FOR AQUEOUS GOLD THIOSULFATE EXTRACTION USING COPPER-CYANIDE PRETREATED CARBON ADSORPTION, WITH MARIAM MELASHVILI AND NICHOLAS V. GOW, 2013.

### AWARDS

ROSE AND ANNA BUSCH FACULTY ACHIEVEMENT AWARD, MONTANA TECH, BUTTE, MT, 2019.  
MERIT, MONTANA TECH, BUTTE, MT, 2018.  
SME DISTINGUISHED MEMBER, SME, FEBRUARY 22, 2017.  
LIFETIME DISTINGUISHED RESEARCHER AWARD, MONTANA TECH, BUTTE, MT, 2016.  
MINERAL INDUSTRY EDUCATOR AWARD, AIME, 2016.  
PRESIDENT'S CITATION, SME, 2015.  
MERIT, MONTANA TECH, BUTTE, MT, 2013.  
MPD MILLMAN OF DISTINCTION AWARD, SME, 2012.  
PRESIDENT'S CITATION, SME, 2009.  
FRANK APLAN AWARD, AIME, 2009.  
DISTINGUISHED RESEARCHER AWARD, MONTANA TECH, BUTTE, MT, 2009.  
ROSE AND ANNA BUSCH FACULTY ACHIEVEMENT AWARD, MONTANA TECH, BUTTE, MT, 2009.  
UNDERGRADUATE RESEARCH COMMITTEE APPRECIATION AWARD, MONTANA TECH, BUTTE, MT, 2009.  
ROSE AND ANNA BUSCH FACULTY ACHIEVEMENT AWARD, MONTANA TECH, BUTTE, MT, 2003.  
COUER D'ALENE FACULTY ACHIEVEMENT AWARD, MONTANA TECH, 1998.  
SME/MPD YOUNG ENGINEER AWARD, FEBRUARY, 1998.

### HONORS

HONORARY ORGANIZER, FLOTATION 2020, LIMA, PERU, SEPTEMBER 23-25, 2020 (DELAYED TO JUNE, 2021, TBD).  
COMMITTEE TO WRITE THE ARGUMENT FOR REJECTION OF I-186, STATE OF MONTANA, JULY-AUGUST, 2018.  
US DEPARTMENT OF ENERGY, NATIONAL ENERGY TECHNOLOGY LABORATORY, TECHNICAL PROGRAM REVIEWER, RARE EARTH ELEMENT FROM COAL AND COAL BY-PRODUCTS, TASKS 1-8, PITTSBURGH, PA, MARCH-APRIL, 2018.  
25-YEAR RECOGNITION, MONTANA TECH, BUTTE, MT, 2018.  
BEST PRESENTATION, TOP 20, AT MOLTEN '16 - 10TH INTERNATIONAL CONFERENCE ON MOLTEN SLAGS, FLUXES AND SALTS, IN SEATTLE WA, "CHARACTERIZATION AND RECOVERY OF VALUABLES FROM WASTE COPPER SMELTING SLAG," P. SARFO, J. YOUNG, G. WYSS AND G. MA, 2016.  
BEST PRESENTATION, TOP 20, AT COPPER COBALT AFRICA – SAIMM 8<sup>TH</sup> BASE METALS CONFERENCE IN LIVINGSTONE ZAMBIA, "XANTHATE CHEMISORPTION AT COPPER AND CHALCOPYRITE SURFACES," J.L. BOWDEN, 2015.  
WEBINAR INVITED PRESENTATION, "ARD REMEDIATION WITH SLAG: AN APPLICATION TO BERKELEY PITLAKE WATER," U.S. EPA, SEPT 19, 2012.  
QUALIFIED PROFESSIONAL (QP) MEMBER, MMSA, 2006-PRESENT.  
LEWIS S. PRATER DISTINGUISHED PROFESSOR OF METALLURGICAL ENGINEERING, 2006-PRESENT.  
SME MPD EXECUTIVE BOARD, MEMBER, 2006-2012.  
SME MPD, TECHNICAL PROGRAM ADVISOR, 2006-2007.  
ORGANIZING CHAIR AND CHIEF EDITOR, BOB SHOEMAKER HYDRO 2008 SYMPOSIUM, PHOENIX, AZ, AUGUST, 2006-2008.  
CHAIR, AQUEOUS PROCESSING COMMITTEE, EPD OF TMS, 2005-2006.  
NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES, U.S. DEPARTMENT OF ENERGY'S INDUSTRIAL TECHNOLOGIES PROGRAM REVIEWER, WASHINGTON DC, 2004-2005.  
TMS REPRESENTATIVE, MEMBERSHIP DEVELOPMENT COMMITTEE, EPD, 2004-2006.

ORGANIZING CHAIR AND CHIEF EDITOR, IAN RITCHIE HYDRO 2003 SYMPOSIUM, VANCOUVER, BC, AUGUST, 2003.  
SME MILTON E. WADSWORTH HYDROMETALLURGY AWARD COMMITTEE, 2001-2003.  
TMS APPLICATION TO PRACTICE, EDUCATOR, AND LEADERSHIP AWARDS COMMITTEE, 2001-2003.  
DIPLOMA DE HONOR AND UNIVERSIDAD DEL EXCELENCIA CON CULTURA ANDINA MEDAL, UNIVERSIDAD NACIONAL DEL ALTIPLANO, FACULTAD DE INGENIERIA DE MINAS, PUNO, PERU, 2001.  
TMS REPRESENTATIVE, STUDENT AFFAIRS COMMITTEE, EPD, 2000-2004.  
TMS EPD COUNCIL, MEMBER, 2000-2006.  
NSF ALAN T. WATERMAN AWARD NOMINATION, 1999.  
TMS EDUCATION COMMITTEE, 1999-2002.  
SIGMA XI YOUNG INVESTIGATOR AWARD, NOMINATION, NORTHWEST REGION NATIONAL REPRESENTATIVE, 1997 & 1999.  
SME AND TMS ABET EVALUATION OBSERVER, SEPTEMBER, 1998.  
INTERNATIONAL JOURNAL OF MINERAL PROCESSING, ASSOCIATE EDITOR, 1998-2016.  
TMS YOUNG LEADER EPD INTERN, 1997-1998.  
SME STUDENT MEMBER AFFAIRS SUBCOMMITTEE, 1997-2005.  
SME AND TMS ACCREDITATION COMMITTEES, 1996-2004.  
ASARCO DISTINGUISHED PROFESSOR OF METALLURGICAL ENGINEERING, 1996-2006.  
TMS YOUNG LEADER, 1995-1997.  
ASM KEY READER FOR *METALLURGICAL AND MATERIALS TRANSACTIONS, B*, 1996-1998.  
ASM BRADLEY STOUGHTON AWARD FOR YOUNG TEACHERS, NOMINATION, 1996-1997.

### **PLENARY AND KEYNOTE PRESENTATIONS**

FLOTATION 2020, LIMA, PERU, "MECHANISM OF ORFOM D8 DEPRESSION IN CU-MO SEPARATION," SEPTEMBER 23, 2020 (DELAYED TO JUNE, 2021, TBD).  
SAIMM MEETING, U OF PRETORIA, PLENARY, "SPECTROELECTROCHEMISTRY OF ENARGITE IN ACIDIC AND ALKALINE SOLUTIONS," AND "MINERAL PROCESSING OF SECONDARY RESOURCES FOR MAKING SIMULANT," JUNE 25, 2015.  
XXII INTERNATIONAL CONGRESS IN EXTRACTIVE METALLURGY AND MINERAL PROCESSING, PLENARY, "COMPARISON OF GOLD CYANIDE ADSORPTION ON AC TO GOLD THIOSULFATE ADSORPTION ON IMPREGNATED AC," MAZATLAN, MEXICO, APRIL 16-19, 2015.  
HYDROPROCESS 2013, PLENARY, "IMPREGNATED ACTIVATED CARBON FOR GOLD EXTRACTION FROM THIOSULFATE SOLUTIONS," SANTIAGO, CHILE, JULY 10-12, 2013.  
8<sup>TH</sup> INTERNATIONAL GOLD SYMPOSIUM, PLENARY, "ALTERNATIVES: THE AFTERMATH OF BANNING CYANIDE LEACHING IN MONTANA," NATIONAL SOCIETY OF MINERALS, PETROLEUM AND ENERGY OF PERU, LIMA, PERU, APRIL 21-23, 2008.  
XXVIII CONVENCION MINERA, PLENARY, "PRESSURE EFFECTS ON FLOTATION," AREQUIPA, PERU, SEPT 10-14, 2007.  
SOCIETY OF NORTH AMERICAN GOLDSMITHS (SNAG), PLENARY, "ENVIRONMENTAL STEWARDSHIP IN THE GOLD MINING INDUSTRY: CAN CYANIDE AND MERCURY BE USED SAFELY?," MEMPHIS, TN, JUNE 13-16, 2007.  
7<sup>TH</sup> INTERNATIONAL GOLD SYMPOSIUM, PLENARY, "CYANIDE STEWARDSHIP: RECYCLING VERSUS DESTRUCTION," NATIONAL SOCIETY OF MINERALS, PETROLEUM AND ENERGY OF PERU, LIMA, PERU, MAY 3-5, 2006.  
ICAMMP-2002, KEYNOTE, "THERMODYNAMICS OF OLEATE CHEMISORPTION AT THE SURFACES OF SEMI-SOLUBLE CALCIUM SALT MINERALS," WITH J.D. MILLER, IITKG-KUAGPUR, INDIA, FEBRUARY 1-3, 2002.  
ICMR 2001 SYMPOSIUM, PLENARY, "REVIEW OF TECHNOLOGIES AND THE DEVELOPMENT OF A NOVEL APPROACH FOR SPL REMEDIATION," AKITA UNIVERSITY, AKITA, JAPAN, OCTOBER 11-13, 2001.  
TMS ANNUAL MEETING, PLENARY, "CYANIDE: JUST THE FACTS," NEW ORLEANS, LA, 2001.

### **GUEST PRESENTATIONS**

TBD INVITATIONS - UNIVERSITY OF ALBERTA-EDMONTON, ALBERTA, CANADA; WUHAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, WUHAN, CHINA; AND SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY, SHENZHEN, CHINA.

U OF NEVADA-RENO MINING AND METALLURGICAL ENGINEERING, "INDUSTRIAL OUTREACH AND RESEARCH FOR MINING SUSTAINABILITY," SEMINAR, MARCH 3, 2017.

U OF NEVADA-RENO MINING AND METALLURGICAL ENGINEERING, "HELPING THE MINING INDUSTRY THROUGH RESEARCH," SEMINAR, JULY 1, 2016.

TECHNOLOGICAL INSTITUTE OF SALTILLO, "MINERAL PROCESSING AND EXTRACTIVE METALLURGY APPLICATIONS – TAILINGS RECYCLING AND ARD REMEDIATION," MAZATLAN, MEXICO, APRIL 20, 2015.

MICHIGAN TECH, SENIOR SEMINAR CLASS, "SYNTHETIC LUNAR SOIL," JANUARY 28, 2013.

MICHIGAN TECH, SURFACE ENGINEERING CLASS, "AC FOR GOLD THIOSULFATE RECOVERY," JANUARY 28, 2013.

SDSM&T, HYDROMETALLURGY CLASS, "AC FOR GOLD THIOSULFATE RECOVERY," APRIL 20, 2012.

SDSM&T, MINERAL PROCESSING CLASS, "SYNTHETIC LUNAR SOIL," APRIL 20, 2012.

U OF UTAH METALLURGICAL ENGINEERING DEPARTMENT, "SOLUBILITY OF  $As_2S_3$  IN RELATION TO AS PRECIPITATION FROM PROCESS SOLUTION," SALT LAKE CITY, UT, APRIL 12, 2000.

NWGS LOCAL SECTION MEETING, "CYANIDE: JUST THE FACTS," SEATTLE, WA, APRIL 11, 2000.

U OF WASHINGTON GEOLOGICAL ENGINEERING, "THE CU-S- $H_2O$  SYSTEM," SEATTLE, WA, APRIL 11, 2000.

U OF IDAHO MINING ENGINEERING, "CYANIDE: JUST THE FACTS," MOSCOW, ID, APRIL 10, 2000.

U OF IDAHO MINING ENGINEERING, "SOLUBILITY OF  $As_2S_3$  IN RELATION TO AS PRECIPITATION FROM PROCESS SOLUTIONS," MOSCOW, ID, APRIL 10, 2000.

NORTHWEST MINING ASSOCIATION, "CYANIDE: JUST THE FACTS," SPOKANE, WA, DECEMBER 2, 1999.

MONTANA MINING ASSOCIATION, "CYANIDE: JUST THE FACTS," HELENA, MT, JANUARY 7, 1999.

MONTANA SECTION OF ACS, "CYANIDE AND MONTANA INITIATIVE 137," HELENA, MT, OCTOBER 22, 1998.

U OF NEVADA-RENO CHEMICAL AND METALLURGICAL ENGINEERING, "SURFACE ELECTROCHEMISTRY OF COPPER AND CHALCOCITE IN WATER/XANTHATE SYSTEMS," SURFACE CHEMISTRY COURSE, NOVEMBER 20, 1997.

U OF NEVADA-RENO CHEMICAL AND METALLURGICAL ENGINEERING, "PHOTOLYTIC REMEDIATION OF CYANIDE CONTAMINANTS IN WATER," SEMINAR, NOVEMBER 21, 1997.

RREL, EPA OFFICE, "CYANIDE REMEDIATION BY PHOTOLYSIS," CINCINNATI, OH, OCTOBER 20, 1995.

SIGMA XI, LOCAL SECTION, BUTTE, MT, "SURFACE ANALYSIS BY FT-IR SPECTROSCOPIC TECHNIQUES," APRIL 10, 1995.

### RESEARCH INTERESTS

AS AN ACCOMPLISHED RESEARCHER, *DR. COURTNEY YOUNG* HAS BEEN RECOGNIZED WITH MONTANA TECH'S RESEARCH AWARD IN 2009 AND LIFETIME DISTINGUISHED RESEARCHER AWARD IN 2016. MOST OF HIS RESEARCH INVOLVE MINERAL PROCESSING AND EXTRACTIVE METALLURGY AND THEIR APPLICATION TO SECONDARY RESOURCE RECOVERY, CRITICAL MATERIALS, AND MINING SUSTAINABILITY ISSUES. CONSEQUENTLY, HIS RESEARCH HAS BEEN DIVERSE. EXAMPLE RESEARCH EFFORTS INCLUDE BUT ARE NOT LIMITED TO IMPROVING AU RECOVERY, REMEDIATING CYANIDE, SELECTING AND TESTING ORES, RECYCLING SPENT POT-LINER, MAKING SYNTHETIC LUNAR SOIL, REPURPOSING SLAGS AND TAILS, TREATING ACID-ROCK DRAINAGE, DETERMINING DEPRESSANT ACTION IN CU-MO FLOTATION, CONDUCTING CU ELECTROWINNING FOR ENERGY SAVINGS, MODELLING FLOTATION, EXAMINING NOVEL COLLECTORS IN REE FLOTATION, RECOVERING VALUABLES FROM SLAGS AND TAILS (PGMS, CU, GARNET, ETC.), MAKING PIG FE FROM SLAG, DESIGNING FLOWSHEETS, PRECIPITATING NANO-AU, RECYCLING PLASTICS BY SURFACE MODIFICATION AND FLOTATION, MANUFACTURING  $TiO_2$  NANO-PARTICLES FOR PHOTOCATALYTIC WATER REMEDIATION, AND UNDERSTANDING SURFACE REACTIONS OF SULFIDE MINERALS IN FLOTATION AND LEACHING.

### GRANTS AND CONTRACTS

#### FEDERAL PROGRAMS

1. ARMY RESEARCH LAB (WITH CAMP), "ADVANCED PROCESSING OF REE NATURAL RESOURCES," YEAR 1: \$246,019 (2015), YEAR 2: \$418,354 (2016), YEAR 3: \$403,294 (2017) AND YEARS 4-5: \$396,000 (2018-19).
2. ARMY RESEARCH LAB, "RARE EARTH PROCESSING BY FLOTATION USING NOVEL COLLECTORS AND OTHER REAGENTS," \$369,472, U OF ALABAMA-BIRMINGHAM (2014-2015).

3. OFFICE OF NAVAL RESEARCH, "REE SELECTIVE PROCESSING BY LEACHING AND CHELATING SPCs," \$300,000 (2012-2016).
4. NASA, MATCHING GRANT, "LUNAR SOIL SEPARATES," \$1000 (2013).
5. NASA TRAVEL GRANT, "LUNAR SOIL SEPARATES," WITH MONTANA SPACE GRANT CONSORTIUM AT MSU-BOZEMAN, \$1500 (2012-2013).
6. NASA RALPH STECKLER/SPACE GRANT SPACE COLONIZATION RESEARCH AND TECHNOLOGY PROGRAM, "MULTIPLE TERRESTRIAL RESOURCES FOR SIMULATING LUNAR SOIL," WITH MONTANA SPACE GRANT CONSORTIUM AT MSU-BOZEMAN, \$85,000 (2010).
7. CENTER FOR ADVANCED SEPARATION TECHNOLOGIES (CAST), "ENHANCEMENT OF HIGH SODIUM COAL: SODIUM REMOVAL TECHNOLOGY DEVELOPMENT," WITH J. MCCLOSKEY (CO-PI), W. GLEASON, D. CAMERON AND L.G. TWIDWELL, \$322,785 (2008-2011).
8. NSF/EPSCoR – MONTANA TECH UNDERGRADUATE RESEARCH PROGRAM, \$450,000, WITH J. FIGUEIRA (2007-10).
9. CENTER FOR ADVANCED SEPARATION TECHNOLOGIES (CAST), "RECOVERY OF GOLD THIOSULFATE FROM SOLUTION USING A NOVEL CARBON ADSORPTION TECHNIQUE," \$185,000, WITH L.G. TWIDWELL AND G. HOPE (2006-2010).
10. NSF/EPSCoR – MONTANA TECH UNDERGRADUATE RESEARCH, \$250,000, WITH JOE FIGUEIRA (2005-2007).
11. U.S. ENVIRONMENTAL PROTECTION AGENCY AND U.S. DOE INTERAGENCY CONTRACT NO. DE-AC22-881D12735 FOR THE MINE WASTE TECHNOLOGY PROGRAM ON "DUAL ECOSYSTEM ENHANCEMENT BY SLAG REMEDIATION OF ARD," WITH D. BERG AND H.H. HUANG, \$60,000 (2005-2006).
12. CENTER FOR ADVANCED SEPARATION TECHNOLOGIES (CAST), "SIMULTANEOUS ELECTROLYSIS OF COPPER AND FERROUS IONS," \$150,000, WITH CES FABIAN AND HSIN-HSUIN HUANG (2003-2005).
13. U.S. EPA AND U.S. DOE INTERAGENCY CONTRACT NO. DE-AC22-881D12735 FOR THE MINE WASTE TECHNOLOGY PROGRAM ON "SULFATE REMOVAL," \$50,000, WITH LARRY TWIDWELL (2002-2004).
14. NSF/EPSCoR – MONTANA TECH UNDERGRADUATE RESEARCH, \$200,000, WITH JOE FIGUEIRA (2002-2004).
15. U.S. DOE – MINING INDUSTRIES OF THE FUTURE, "A REAL-TIME COAL CONTENT/ORE GRADE (C2OG) SENSOR," \$220,000, WITH TOM MOON OF GEOPHYSICAL ENGINEERING DEPT AND RAND SWANSON OF AdvR (2001-2004).
16. U.S. STATE DEPARTMENT, MONTANA TECH INTERNATIONAL EXCHANGE PROGRAM, (A) CMRDI, CAIRO, EGYPT, (B) UNSW, SYDNEY, AUSTRALIA, (C) IIT-KHARAGPUR, INDIA, (D) LULEA UNIVERSITY, LULEA, SWEDEN, (E) AKITA UNIVERSITY, AKITA, JAPAN, (F) MONASH UNIVERSITY, MELBOURNE, AUSTRALIA, (G) GRIFFITH UNIVERSITY AND JULIUS KRUSNIT INSTITUTE, BRISBANE, AUSTRALIA, (H) MURDOCH UNIVERSITY, PERTH, AUSTRALIA, (I) MCGILL UNIVERSITY, MONTREAL, CANADA, (J) GHANA UNIVERSITY, TARKWA, GHANA, AND (K) CRETE UNIVERSITY, CHANIA, GREECE, \$142,000 (2000-PRESENT).
17. U.S. ENVIRONMENTAL PROTECTION AGENCY AND U.S. DOE INTERAGENCY CONTRACT NO. DE-AC22-881D12735 FOR THE MINE WASTE TECHNOLOGY PROGRAM, "SELECTIVE METAL RECOVERY FROM ARD," \$80,000 (1999-2000).
18. U.S. ENVIRONMENTAL PROTECTION AGENCY AND U.S. DOE INTERAGENCY CONTRACT NO. DE-AC22-881D12735 FOR THE MINE WASTE TECHNOLOGY PROGRAM, "ANALYSIS OF SEDIMENTS IN THE BERKELEY PITLAKE," WITH LARRY TWIDWELL (PI) AND DICK BERG, \$80,000 (1998-1999).
19. U.S. ENVIRONMENTAL PROTECTION AGENCY AND U.S. DOE INTERAGENCY CONTRACT NO. DE-AC22-881D12735 FOR THE MINE WASTE TECHNOLOGY PROGRAM, "COMPARISON OF SYNTHETIC AND NATURALLY-OCCURRING PHOTOCATALYZED EVENTS IN THE BERKELEY PITLAKE," \$80,000 (1997-1999).
20. NATIONAL SCIENCE FOUNDATION, MONTANA TECH UNDERGRADUATE RESEARCH PROGRAM, ~\$100,000, (1997-PRESENT) – SEE LISTINGS OF STUDENTS AND PROJECTS UNDER STUDENT ADVISEES.
21. NATIONAL SCIENCE FOUNDATION RESEARCH EXPERIENCES FOR UNDERGRADUATES, NSF-REU-93-112, "EVALUATION OF SOLUTION EXTRACTION PROCEDURES FOR GOLD BISULFIDE," \$10,000 (1996-1997).
22. U.S. ENVIRONMENTAL PROTECTION AGENCY AND U.S. DOE INTERAGENCY CONTRACT NO. DE-AC22-881D12735 FOR THE MINE WASTE TECHNOLOGY PROGRAM ON "PHOTOASSISTED ELECTRON TRANSFER REACTIONS OF APPLICATION TO MINE WASTEWATER CLEANUP: BERKELEY PIT ACID MINE WATER," \$65,000 (1996-1997).



23. U.S. ENVIRONMENTAL PROTECTION AGENCY AND U.S. DOE INTERAGENCY CONTRACT NO. DE-AC22-881D12735 FOR THE MINE WASTE TECHNOLOGY PROGRAM ON “PHOTOASSISTED ELECTRON TRANSFER REACTIONS OF APPLICATION TO MINE WASTEWATER CLEANUP: METAL-COMPLEXED CYANIDE,” \$20,000 (1995-1997).
24. U.S. ENVIRONMENTAL PROTECTION AGENCY AND U.S. DOE INTERAGENCY CONTRACT NO. DE-AC22-881D12735 FOR THE MINE WASTE TECHNOLOGY PROGRAM ON “PHOTOASSISTED ELECTRON TRANSFER REACTIONS OF APPLICATION TO MINE WASTEWATER CLEANUP: CYANIDE AND NITRATE,” \$12,100 (1995-1996).

#### **STATE/INSTITUTIONAL PROGRAMS**

1. HOST TO DR. KAZUTOSHI HAGA, AKITA UNIVERSITY, JAPAN, OVERSEAS TRANSFER PROGRAM, \$10,000 (OCTOBER 2020 – DECEMBER 2020).
2. HOST TO DR. SENGPAITH HOUNGALOUNE, FULLBRIGHT SCHOLAR, NATIONAL UNIVERSITY OF LAOS, VIENTIANE CAPITAL, LAOS, \$20,000 (SEPTEMBER 2018 – DECEMBER 2018).
3. HOST TO DR. IYIOLA “TUNJI” OTUNNIYI, SABBATICAL, VAAL UNIVERSITY, VANDERBILTPARK, S. AFRICA, “FUNDAMENTAL UNDERSTANDING OF PENTLANDITE-PYRRHOTITE FLOTATION,” \$10,000 (MARCH 2018 – JUNE 2018).
4. HOST TO DR. YASUSHI TAKASAKI, AKITA UNIVERSITY, JAPAN, OVERSEAS TRANSFER PROGRAM, \$10,000 (JUNE 2016 – AUGUST 2016).
5. HOST TO DR. GUOJUN MA, CHINA SCHOLARSHIP PROGRAM AND INTERNATIONAL PROGRAM OF WUHAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, “SLAG RECYCLING,” \$20,000 (JANUARY 2015 – DECEMBER 2015).
6. HOST TO DR. YASUSHI TAKASAKI, AKITA UNIVERSITY, JAPAN, OVERSEAS TRANSFER PROGRAM, \$10,000 (AUGUST 2012 – OCTOBER 2012).
7. MONTANA BOARD OF RESEARCH AND COMMERCIALIZATION TECHNOLOGY (MBRCT), “ENHANCEMENT OF MONTANA COAL TO SUPPORT FUTURE EXPANSION: ADVANCED COAL CHARACTERIZATION,” WITH C.G. ANDERSON (PI), J. MCCLOSKEY, C.A. YOUNG, W. GLEASON, P.J. MIRANDA AND L.G. TWIDWELL, \$80,133, (2008-2009).
8. MONTANA SPACE GRANT CONSORTIUM, “SUPPORT FOR UNDERGRADUATE RESEARCH,” \$32,000, 2005-2013.
9. HOST TO DR. HESHAM MAHMOUD, EGYPTIAN FULBRIGHT SCHOLAR PROGRAM, “PETROLEUM CATALYST RECYCLING,” \$20,000 (FEBRUARY 2001 – AUGUST 2001).
10. HOST TO DR. HESHAM MAHMOUD, CENTRAL METALLURGICAL RESEARCH AND DEVELOPMENT INSTITUTE (CMRDI), INTERNATIONAL PROGRAM, “PETROLEUM CATALYST RECYCLING,” \$15,000 (AUGUST 2000 – JANUARY 2001).
11. MONTANA TECH FOUNDATION MINI-GRANT PROJECT ON “GOLD LABORATORY EXERCISES II,” \$1500 (1995-1996).
12. MONTANA TECH FOUNDATION MINI-GRANT PROJECT ON “GOLD LABORATORY EXERCISES,” \$1500 (1994-1995).

#### **INDUSTRIAL PROGRAMS**

1. CHEVRON-PHILLIPS CHEMICAL COMPANY, “SPECTROELECTROCHEMISTRY OF NOVEL REAGENTS FOR SULFIDE FLOTATION, PHASE III,” \$13,500, 2020.
2. INTEGRATED RECYCLING TECHNOLOGIES, WITH A. DAS AS CO-PI, “PCB RECYCLING,” \$150,000, 2018-2020.
3. CHEVRON-PHILLIPS CHEMICAL COMPANY, “SPECTROELECTROCHEMISTRY OF NOVEL REAGENTS FOR SULFIDE FLOTATION, PHASE II,” \$186,500, 2018-2019.
4. UTRS, “RECYCLING OF SLAG FROM PROPRIETARY PROCESS,” \$22,110, 2018.
5. CHEVRON-PHILLIPS CHEMICAL COMPANY, “SPECTROELECTROCHEMISTRY OF NOVEL REAGENTS FOR SULFIDE FLOTATION,” \$173,000, 2016-2018.
6. BARRICK GOLDEN SUNLIGHT MINE, “RECOVERING CU FROM SLAG VIA MATTE-PHASE REACTIONS,” \$16,000, 2017-2018.
7. STILLWATER MINING CORPORATION, “RECOVERING PT FROM SLAG VIA CARBOTHERMAL REDUCTION,” \$16,000, 2017-2018.
8. FX SOLUTIONS, WITH A. DAS AS CO-PI, “RECOVERING GLASS FROM SLAG VIA CARBOTHERMAL REDUCTION,” \$180,000 (2019-2020) AND \$210,000 2017-2018.

9. AMINPRO, "CROWDING OF BUBBLES IN FROTH FLOTATION, WITH R. LADOUCEUR" SUBAWARD TO FREEPORT-McMoRAN, \$16,000, 2017.
10. GMA MINING, "UTILIZATION OF TAILINGS FROM GARNET PROCESSING PLANT," \$33,130, MARCH-SEPTEMBER, 2016.
11. FREEPORT McMoRAN, PROPRIETARY SUBCONTRACT FROM DR. MIKE MOATS AT MISSOURI S&T, \$12,000, MAY-AUGUST, 2015.
12. CLIFFS NATURAL RESOURCES (FORMERLY CLEVELAND CLIFFS), \$15,000, METALLURGICAL & MATERIALS ENGINEERING UNDERGRADUATE RESEARCH, MONTANA TECH FOUNDATION, 2008-2011.
13. BASF AND NEWMONT, "ENHANCING AU LEACHING KINETICS WITH SURFACTANTS," WITH H.H. HUANG, \$88,000, 2009-2010.
14. NEWMONT MINING COMPANY, \$200,000, INCLUDES \$20,000 (2020), METALLURGICAL & MATERIALS ENGINEERING UNDERGRADUATE AND GRADUATE RESEARCH SUPPORT, MONTANA TECH FOUNDATION, 2005-PRESENT.
15. POSITRONICS, \$20,000, WITH KEVIN JAANSALU (PI), METALLURGICAL & MATERIALS ENGINEERING SENIOR DESIGN & RESEARCH SUPPORT, MONTANA TECH FOUNDATION, 2005-2008.
16. CENTER FOR ADVANCED MINERAL PROCESSING (CAMP), MONTANA TECH OF THE UNIVERSITY OF MONTANA, VARIOUS CONTRACTS AND PROJECTS, > \$750,000 (1994-PRESENT):
  - a. BASIN INDUSTRIAL SERVICES (FX SOLUTIONS), PROCESSING OF ANACONDA SLAG, \$10,000 MATCH, 2015-2016.
  - b. RARE EARTHS UNIVERSITY COLLABORATION INITIATIVE WITH MOLYCORP (INCLUDES \$100K FEEDER), 2011-2012.
  - c. STILLWATER MINING, PROPRIETARY PROJECT, \$100K, 2007-2010.
  - d. HYDROGEN PROJECT, RESEARCHER ON \$300K INITIATIVE PROJECT, 2007-2010.
  - e. TEMPER, INITIATOR AND RESEARCHER ON \$1M INITIATIVE, 2005-2009.
  - f. ASIMI, PROPRIETARY PROJECT, \$10,000, 2004-2005.
  - g. MONTANA RESOURCES, "FLOTATION RESPONSE WITH NEW WATER SOURCE," \$5000, 2004.
  - h. ASIMI, PROPRIETARY PROJECT, \$10,000, 2003.
  - i. STILLWATER MINING, PROPRIETARY PROJECT, \$5,000, 2003.
  - j. LUZENAC AMERICA, "TALC ZETA POTENTIAL," \$1000, 2002.
  - k. ASIMI, PROPRIETARY PROJECT, \$10,000, 2000-2001.
  - l. MOUNT HAGGIN DEVELOPMENT, "CYANIDE ALTERNATIVES TO GOLD RECOVERY," \$2500, 1998-2000.
  - m. R.K. GEORGE MINING, "GOLD FLOTATION AND ENHANCED GRAVITY SEPARATION," \$2500, 1997-1998.
  - n. HARNOLE AND ASSOCIATES, "GRAVITY SEPARATION OF GOLD ORES," \$2500, 1996.
  - o. STILLWATER MINING, "DEVELOPMENT OF SMELTER GYPSUM AS A CEMENT FEED STOCK," \$19,500, 1995-1996.
  - p. MCCALLUM POLE, "BARITE PROCESS DESIGN," \$4000, 1995.
  - q. RDM MULTI-ENTERPRISES, "PHYSICAL CHARACTERIZATION OF SLAGS," \$1000, 1995.
  - r. SILVER VALLEY RESOURCES, "MINERALOGICAL ANALYSIS OF THE COUER AND GALENA CONCENTRATES FOR DETERMINING SILVER UP-GRADING STRATEGIES," \$3100, 1995.
  - s. MONTANA ENVIROMET, INC., "AMMONIA REMOVAL FROM WATER," \$2000, 1995.
  - t. MONTANA ENVIROMET, INC., "MERCURY REMOVAL FROM SOIL," \$2000, 1994-1995.
  - u. MONTANA TUNNELS, "DETERMINATION OF SILVER LOSSES IN FLOTATION TAILINGS," \$3,500, 1994.
  - v. MYCOTECH, "DEVELOPMENT OF FUNGI FOR REMEDIATION OF ACID MINE WATERS," \$150,000, 1994-1995.
17. MAJOR FLOTATION EQUIPMENT MANUFACTURER, "PARAMETRIC EFFECT ON FLOTATION," \$15,000, (1998-1999).
18. MSE-TA, INC., "DEVELOPMENT OF RECYCLING STRATEGIES FOR SPENT POTLININGS, PART II" \$7,500 (1997-1998).
19. MSE-TA, INC., "DEVELOPMENT OF RECYCLING STRATEGIES FOR SPENT POTLININGS," \$20,000 (1996-1997).
20. LANDSGAARD AND ASSOCIATES, "CYANIDE LEACHING OF NATIVE GOLD ORES," \$2500, 1996-1997.
21. YES TECHNOLOGIES, INC., "BIOLOGICAL LEACHING OF GOLD," \$100,000, (1995-1999).
22. MSE-TA, INC., "UPGRADING SPENT LIME INTO A MARKETABLE COMMODITY," \$5000 (1995-1996).

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**FINAL AND PROPRIETARY REPORTS**

1. "RARE EARTH PROCESSING BY FLOTATION USING NOVEL COLLECTORS AND OTHER REAGENTS," ARMY RESEARCH LAB (ARL), 2016, 2017, 2018 AND 2019.
2. "UTILIZATION OF TAILINGS FROM GARNET PROCESSING PLANT," GARNET U.S.A., 2016.
3. "REE SELECTIVE PROCESSING BY LEACHING AND CHELATING SPC'S," OFFICE OF NAVAL RESEARCH (ONR), WASHINGTON DC, 2016.
4. "PROPRIETARY REPORT," FREEPORT McMoRAN/MISSOURI S&T/DR. MICHAEL MOATS, 2015.
5. "RARE EARTH PROCESSING BY FLOTATION USING NOVEL COLLECTORS AND OTHER REAGENTS," ARMY RESEARCH LAB (ARL), U OF ALABAMA-BIRMINGHAM, 2015.
6. "RECOVERY OF GOLD FROM THIOSULFATE SOLUTION USING A NOVEL CARBON ADSORPTION PROCESS," CENTER FOR ADVANCED SEPARATION TECHNOLOGIES (CAST), BLACKSBURG, VA, 2008 AND 2010.
7. "SURFACTANTS FOR ENHANCING GOLD LEACHING RATES AND EFFICIENCIES," BASF, LUDWIGSHAFEN, GERMANY, 2009.
8. "DUAL ECOSYSTEM ENHANCEMENT – ARD REMEDIATION WITH SLAG," EPA MINE WASTE TECHNOLOGY PROGRAM, MWTP-255, MSE-TA, BUTTE, MT, 2007.
9. "SIMULTANEOUS ELECTROLYSIS OF COPPER AND FERROUS IONS," CENTER FOR ADVANCED SEPARATION TECHNOLOGIES (CAST), BLACKSBURG, VA, 2006.
10. "SULFATE REMOVAL TECHNOLOGY DEVELOPMENT," WITH L.G. TWIDWELL, EPA MINE WASTE TECHNOLOGY PROGRAM, MWTP-240, MSE-TA, BUTTE, MT, 2005.
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12. "REAL-TIME COAL CONTENT/ORE GRADE (C<sup>2</sup>OG) SENSOR," WITH TOM MOON IN GEOPHYSICAL ENGINEERING DEPT AND RAND SWANSON, PRESIDENT, AdvR, U.S. DOE – MINING INDUSTRIES OF THE FUTURE, WASHINGTON DC, 2004.
13. "METALLURGICAL & MATERIALS ENGINEERING INTERNATIONAL COLLABORATIONS," WITH JOE FIGUEIRA AS PART OF THE BROADER MONTANA TECH INTERNATIONAL EXCHANGE PROGRAM, U.S. STATE DEPARTMENT, WASHINGTON DC, 2004.
14. "SELECTIVE METAL RECOVERY FROM ARD," EPA MINE WASTE TECHNOLOGY PROGRAM, MWTP-224, MSE-TA, BUTTE, MT, 2003.
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19. "PHOTOASSISTED ELECTRON TRANSFER REACTIONS OF APPLICATION TO MINE WASTEWATER CLEANUP: BERKELEY PIT ACID MINE WATER," EPA MINE WASTE TECHNOLOGY PROGRAM, MWTP-162, MSE-TA, BUTTE, MT, 1998.
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- TOMOGRAPHY," R. LADOUCEUR AND P. HOLDSWORTH, SUBMITTED, *MINERALS ENGINEERING*, 2019.
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  24. "CONSIDERATION AND CONSTRUCTION OF POTENTIAL- $\text{PO}^{2-}$  DIAGRAMS WITH EMPHASIS ON MOLTEN SALT ELECTROLYSIS OF NEODYMIUM FROM FLUORIDE BATHS," P. SARFO AND H.H. HUANG, SUBMITTED, *MET MAT TRANS B*, 2019.
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  26. "CONSIDERATION OF THE PULP/FROTH INTERFACE IN THE COMPARTMENT MODEL OF FLOTATION," R. LADOUCEUR AND P. AMELUNXEN, SUBMITTED, *MINERALS ENGINEERING*, 2019.

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29. "STUDIES ON THE NATURE OF SALICYLHYDROXAMATE ADSORPTION AT THE SURFACE OF NEODYMIUM OXIDE," M. SIME, A. DAS, G. GALT AND G. HOPE, *J. DISP. SCI & TECH*, 40(10): 1488-1498, 2019.
30. "STABILITY DIAGRAMS FOR COPPER-SULFIDE AND COPPER-RECYCLE SYSTEMS APPLIED TO EXTRACTIVE METALLURGICAL PROCESSES," H.H. HUANG AND L.G. TWIDWELL, *IJ SOC MAT ENG FOR RES*, 23(2):128-136, 2018.
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33. "RECOVERY OF METAL VALUES FROM COPPER SLAG AND REUSE OF RESIDUAL SECONDARY SLAG," P. SARFO, A. DAS AND G. WYSS, *WASTE MANAGEMENT*, 70:272-281, 2017.
34. "XANTHATE CHEMISORPTION AT COPPER AND CHALCOPYRITE SURFACES," J.L. BOWDEN, *J OF SAIMM*, 116:503-8, 2016.
35. "UTILITY OF MASS-BALANCED  $E_H$ -PH DIAGRAMS II – APPLICATIONS OF GIBBS RULE," R.N. GOW AND H. HUANG, *MINER. METALL. PROCESS*, 33(3):107-115, 2016.
36. "UTILITY OF MASS-BALANCED  $E_H$ -PH DIAGRAMS I – APPLICATIONS TO CU-AS-S- $\text{H}_2\text{O}$  SYSTEM," R.N. GOW AND H. HUANG, *MINER. METALL. PROCESS*, 33(2):58-67, 2016.
37. "SPECTROELECTROCHEMISTRY OF ENARGITE III: REACTIVITY IN ALKALINE SULFIDE SOLUTIONS," R.N. GOW, H. HUANG AND G. HOPE, *MINER. METALL. PROCESS*, 32(1):14-21, 2015.
38. "SPECTROELECTROCHEMISTRY OF ENARGITE I: REACTIVITY IN ALKALINE SOLUTIONS," R.N. GOW, H. HUANG, G. HOPE AND Y. TAKASAKI, *MINER. METALL. PROCESS*, 32(1):6-13, 2015.
39. "BENEFICIATION OF STILLWATER COMPLEX ROCK FOR THE PRODUCTION OF LUNAR SIMULANTS." D.L. RICKMAN, D. STOESER AND J. EDMUNSON, *NASA/TM—2014–217502*, 2014.
40. "PRELIMINARY INVESTIGATION OF THE EFFECT OF PRESSURE ON FLOTATION PERFORMANCE," *JOM*, 59(10)48-520, 2007.
41. "MERCURY CONCENTRATIONS OF FISH, RIVER WATER, AND SEDIMENT IN THE RÍO RAMIS-LAKE TITICACA WATERSHED, PERU," WITH C.H. GAMMONS, D.G. SLOTTON, B. GERBRANDT, W. WEIGHT, R.L. MCNEARNY, E. CÁMAC, R. CALDERÓN, H. TAPIA, AND A. HUAMANI, *SCI. TOTAL ENVIRON.*, 368(2-3):637-48, 2005.
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- TWIDWELL AND R. BERG, *MJMP&EP*, 3:266-281, 2004.
43. "THE DISSOLUTION OF COPPER SULFIDES UNDER REDUCING CONDITIONS," ERIC DAHLGREN AND BOB ROBINS, *HYDROMETALLURGY* 41:118-130, 2002.
  44. "CONFORMATION OF CHEMISORBED OLEATE ADSORBED AT A CALCITE SURFACE." J.D. MILLER, *MINER. METALL. PROCESS*, 18:38-44, 2001.
  45. "EFFECT OF TEMPERATURE ON OLEATE ADSORBED AT A CALCITE SURFACE: FT-IR/IRS STUDY AND REVIEW." J.D. MILLER, *INTERN. J. MINER. PROC.*, 31:248-266, 1999.
  46. "SURFACE PHASE TRANSITIONS OF ADSORBED COLLECTOR MOLECULES AS REVEALED BY IN-SITU FT-IR/IRS SPECTROSCOPY." J.J. KELLAR, M.R. YALAMANCHILI, W.M. CROSS AND J.D. MILLER, *MIN. MET. PROC.*, 10:75-80, 1993.
  47. "SIGNIFICANCE OF TEMPERATURE CONTROL IN FT-NIR SPECTROMETERS." K. KNUTSON AND J.D. MILLER, *APPL. SPECTROSC.*, 47:7-11, 1993.
  48. "IN-SITU FT-IR/IRS INVESTIGATION OF DOUBLE-BOND REACTIONS OF ADSORBED OLEATE AT A FLUORITE SURFACE," J.J. KELLAR AND J.D. MILLER, *INTER. J. MINER. PROC.*, 32:239-251, 1992.
  49. "THERMOTROPIC PHASE TRANSITIONS OF ADSORBED OLEATE SPECIES AT A FLUORITE SURFACE BY IN-SITU FT-IR/IRS SPECTROSCOPY," J.J. KELLAR, K. KNUTSON AND J.D. MILLER, *J. COLL. INTERF. SCI.*, 144:381-389, 1991.
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  51. "ETHYL XANTHATE CHEMISORPTION ISOTHERMS AND  $E_H$ -PH DIAGRAMS FOR THE COPPER/WATER/XANTHATE AND CHALCOCITE/WATER/XANTHATE SYSTEMS." R. WOODS AND R.H. YOON, *INTER. J. MINER. PROC.*, 30:17-33, 1990.
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58. "FUNDAMENTAL UNDERSTANDING OF THE FLOTATION CHEMISTRY OF RARE EARTH MINERALS," S. TRANT, G. GALT AND A. DAS, PROCEEDINGS OF EXTRACTION 2018, CIM, OTTAWA, ONTARIO, CANADA, AUGUST 26-29, 2018.
59. "A FUNDAMENTAL STUDY OF DI-SODIUM CARBOXYMETHYL TRITHIOCARBONATE (ORFOM<sup>®</sup> D8) IN FLOTATION SEPARATION OF COPPER-MOLYBDENUM SULFIDES," S. TIMBILLAH AND A. DAS, PROCEEDINGS OF EXTRACTION 2018, CIM, OTTAWA, ONTARIO, CANADA, AUGUST 26-29, 2018.
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**PRESENTATIONS (NOT ASSOCIATED WITH PROCEEDINGS)**

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15. "MINERAL PROCESSING OF PRIMARY AND SECONDARY RESOURCES FOR MAKING LUNAR SOIL SIMULANT," F. ASIRIFI, 2<sup>ND</sup> OF 2 PLENARIES, SAIMM REGIONAL MEETING, U OF PRETORIA, JUNE 25, 1015.
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62. "SURFACE ANALYSIS BY FT-IR SPECTROSCOPIC TECHNIQUES," INVITED, SIGMA XI LOCAL MEETING, BUTTE, MT, OCTOBER 12, 1995.
63. "CYANIDE REMEDIATION BY PHOTOLYSIS," MINE WASTE FIELD CAMP '95, THE FIFTH ANNUAL MINE WASTE REMEDIATION TECHNOLOGY CONFERENCE, FAIRMONT HOT SPRINGS, MT, AUGUST 8-12, 1995.
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66. "OLEATE ADSORPTION AT CALCIUM SEMI-SOLUBLE SALT SURFACES," 2ND BIENNIAL MEETING OF THE SNAKE RIVER SECTION OF SOCIETY FOR APPLIED SPECTROSCOPY, FAIRMONT HOT SPRINGS, MT, JUNE 25, 1994.
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## **STUDENT ADVISEES**

### ***PH.D. STUDENTS***

BLAINE BERRINGTON, "BIOSORBENTS FOR REMEDIATING WASTE WATERS FROM MOBILE OPERATIONS," MATSci PhD PROGRAM (WITH KATIE HAILER AS CHAIR), MONTANA TECH, IN PROGRESS.

PRINCE SARFO, "IMPROVING MOLTEN SALT ELECTROLYSIS OF RARE EARTH BY NOVEL PROCESS," MATSci PhD PROGRAM (WITH H.H. HUANG AS CO-CHAIR), MONTANA TECH, DECEMBER 2019.

SIMON TIMBULLAH, "SULFIDE FLOTATION USING NOVEL DEPRESSANTS," MATSci PhD PROGRAM, MONTANA TECH, MAY 2019.

RICHARD "RICK" LADOUCEUR, "HIGH FIDELITY KINETIC MODEL FOR FLOTATION: APPLICATIONS TO RARE EARTH ELEMENTS AND COPPER/MOLYBDENUM SEPARATIONS," MATSci PhD PROGRAM, MONTANA TECH, APRIL 2018.

ROBERT "NICK" GOW, COMMITTEE CHAIR, "SPECTROELECTROCHEMISTRY OF ENARGITE," IIP PROGRAM (WITH ED ROSENBERG AS CO-CHAIR), MONTANA TECH AND THE UNIVERSITY OF MONTANA, MAY 2015.

BILL GLEASON, COMMITTEE MEMBER, "SILICA GEL COMPOSITE TECHNOLOGY FOR METAL RECOVERY AND WASTE WATER REMEDIATION," CHEMISTRY AND METALLURGICAL ENGINEERING, IIP PROGRAM (WITH ED ROSENBERG AS CHAIR), THE UNIVERSITY OF MONTANA AND MONTANA TECH, JULY 2007.

### ***M.S. THESIS STUDENTS***

KATIE BOZER, "PRECIPITATION OF NANO-GOLD BY VARIOUS REAGENTS," IN PROGRESS, MAY 2022.

PHILLIP HOLDSWORTH, "COLUMN FLOTATION MODELLING IN THE ABSENCE AND PRESENCE OF SOLID," MAY 2020.

BEN SUSLAVICH, "RECYCLING OF PRINTED CIRCUIT BOARDS," WITH A. DAS AS CO-CHAIR, MAY 2020.

GARY WILSON, "TiO<sub>2</sub> PHOTOCATALYST SYNTHESIS AND USE FOR ORGANIC DESTRUCTION," IN PROGRESS, JANUARY 2020.

ADILBEK BAIGABELOV, "RECYCLING OF PLASTICS BY FLOTATION," WITH A. DAS AS CHAIR, DECEMBER 2019.

STEPHANIE TRANT, "RE PHOSPHATE SURFACE CHEMISTRY WITH SALICYLHYDROXAMATE," NOVEMBER 2018.

MARC "FREDDY" SIME, "MODELLING OF COLLECTORS AT RE MINERAL SURFACES," OCTOBER 2018.

NATALIE DERINGER, "MATTE AND CARBOTHERMAL REACTIONS FOR METAL RECOVERY," SEPTEMBER 2018.

GREER GALT, "RE OXIDE AND CARBONATE SURFACE CHEMISTRY WITH SALICYLHYDROXAMIC ACID," MAY 2017.

PRINCE SARFO, "RECYCLING SLAG INTO VALUABLE MATERIALS," DECEMBER 2016.

TYLER BRODEN, "ELECTROCHEMISTRY OF XANTHATE CHEMISORPTION ON ENARGITE," MAY 2016.

JESSE BOWDEN, "ELECTROCHEMISTRY OF XANTHATE CHEMISORPTION ON CHALCOPYRITE," MAY 2015.

FRANK ASIRIFI, "BENEFICIATION OF GEOMATERIALS FOR THE PRODUCTION OF LUNAR SOIL SIMULANT," MAY 2015.

TODD FAYRAM, "GERMANIUM PRODUCTION FROM SPHALERITE CONCENTRATES," MAY 2014.

KERI CALDWELL, "COMPARISON OF INDUSTRIAL ROTORS AND STATORS AND THEIR POSITION," AUGUST 2012.

MARIAM MELASHVILI, "OPTIMIZATION AND STRIPPING OF AU-LOADED PRETREATED ACTIVATED CARBON," MAY 2009.

LEO MYELSWAMY, "MLA COMPARISON TO TRADITIONAL ANALYSES FOR CU AND TI ORES," CAMP, MAY 2008.

NICK GOW, "PRETREATED ACTIVATED CARBON FOR GOLD RECOVERY FROM THIOSULFATE SOLUTION," MAY 2008.

KRAG FILIUS, "MANGANESE AND ARD REMEDIATION BY SLAG ADDITION," MWTP, MAY 2007.

PHILIP TEINTZE, "UNDERSTANDING NANOSILICON POWDER FORMATION," ASIMI, AUGUST 2006.

TOM MCINTYRE, "FERRIC LEACHING OF CZO," CAST, MAY 2006.

FRANCIS DAKUBO, "SIMULTANEOUS ELECTROWINNING OF CUPRIC AND FERROUS IONS," CAST, MAY 2006.

RON JOHNSON, "ON-LINE ANALYSIS FOR ORE ASSAY DETERMINATION BY SPECTROSCOPY," MAY 2004.

TOM McMILLAN, "SELECTIVE RECOVERY OF METALS IN BERKELEY PITLAKE WATER," MWTP, MAY 2001.

MARTY BENNETT, "PHOTOLYSIS IN THE SURFACE WATERS OF THE BERKELEY PITLAKE," MWTP, MAY 1999.

YU-CHUAN TAI, "SELECTIVE RECOVERY OF METAL VALUES FROM BERKELEY PITLAKE WATER," MWTP, MAY 1997.

KELVIN GEBHARDT, "DEVELOPMENT OF SMELTER GYPSUM AS A CEMENT PLANT FEEDSTOCK," MAY 1996.

STEVE CASHIN, "CYANIDE OXIDATION BY ADVANCED OXIDATION PROCESSES," MWTP, MAY 1996.

JENNIFER BALLARD, "USE OF A FUNGAL BIOMASS FOR REMEDIATION OF ACID-MINE DRAINAGE," DECEMBER 1995.

**M.S. NON-THESIS STUDENTS**

ANA ANTUNES-SILVA, 2019.  
WILL NICHOLAS, 2015.  
RUSLAN BUKENOV, 2015.  
DAVE DOUGLAS, 2005.  
DAVE FOWLER, 2004.  
AMY WILKINS, 2001.  
TOM VALENTINE, 1998.  
AMY LAMB, 1996.

**B.S. UNDERGRADUATE RESEARCH STUDENTS**

MARK POORE, "VERIFICATION OF A COLUMN FLOTATION MODEL," 2020.  
GANNON, RYAN, "COLUMN AND BOTTLE ROLL LEACHING OF PROPRIETARY ORES," 2019.  
KATIE BOZER AND CAMERON HUGHES, "PRECIPITATION OF NANO GOLD," WITH ANA ANTUNES SILVA, 2019.  
SIGURDSON, ERIK, "RECYCLING OF CIRCUIT BOARDS," WITH AVIMANYU DAS AND BEN SUSLAVICH, 2019.  
MORGAN ASHBAUGH, "IMPROVING THE BRASS RECYCLING OF SPENT BULLET CASINGS," WITH BILL GLEASON AND IAN "MILES" JAQUA, 2018-2019.  
KATIE BOZER AND AIMEE EUBANKS, "COLUMN FLOTATION FOR CRITICAL MATERIALS AND PLASTICS RECYCLING," WITH RICK LADOUCEUR AND AVIMANYU DAS, 2018-2019.  
CAMERON HUGHES AND REED HARDER, "CONSTRUCTION OF NOVEL COMBINED-UNIT SEPARATION PROCESS," WITH AVIMANYU DAS AND MATT EGLOFF, 2018.  
JAKE BENTLEY, "CROWDING A CU/MO CONCENTRATE IN FLOTATION," WITH RICK LADOUCEUR, 2017-2018.  
AIDAN YORK, "SLAG ANALYSIS BEFORE AND AFTER CARBOTHERMAL REDUCTION," WITH NATALIE DERINGER, 2017.  
LUKE MCCULLOCH, "CROWDING OF ORE IN FLOTATION," WITH RICK LADOUCEUR, 2017.  
CONNOR WINDMUELLER, "SPECTROELECTROCHEMISTRY OF D8 DEPRESSANT ON CU," WITH SIMON TIMBILLAH, 2017.  
IAN "MILES" JAQUA, "RECYCLING OF SPENT BULLET CASINGS BY SAND-CASTING," WITH BILL GLEASON, 2017.  
ALEESHA AASVED, "FLOTATION OF A RE ORE USING NOVEL COLLECTORS," WITH RICK LADOUCEUR, 2016-2018.  
ETHAN BAILY, "SPECTROELECTROCHEMISTRY OF ADSORBED XANTHATE ON COPPER," WITH SIMON TIMBILLAH, 2016.  
JARED CLARK AND PAT RUMLEY, "FLOTATION OF RE COMPOUNDS," WITH GREER GALT AND STEPHANIE TRANT, 2016.  
STEVEN BRODDY AND JACOB HOWERY, "MODELING OF RE FLOTATION COLLECTORS," WITH FREDDY SIME, 2016.  
BEN SUSLAVICH, "FLOTATION OF RE PHOSPHATES," WITH RICK LADOUCEUR, 2016.  
JAMIE YOUNG, "CHARACTERIZATION OF SLAG," WITH PRINCE SARFO AND GUOJUN MA, 2015.  
MARK LeVOIE, "REE-OXIDE AND CARBONATE FLOTATION (Y)," WITH WILL NICHOLAS AND RICK LADOUCEUR, 2015.  
MOLLY BROCKWAY, "REE-OXIDE AND CARBONATE FLOTATION (Ce)," WITH GREER GALT AND RICK LADOUCEUR, 2014.  
BRYCE ABSTETAR, "REE-OXIDE AND CARBONATE FLOTATION (La)," WITH WILL NICHOLAS AND RICK LADOUCEUR, 2014.  
ARIANNE ERICKSON, "CHARACTERIZATION OF A NOVEL CERAMIC COMPOSITE," WITH AL MEIER, 2011.  
ALLYSE CRUISE, "ARSENITE REMEDIATION WITH NANO-GRAPHENE," WITH NICK GOW, 2010.  
JESSE BOWDEN, "ARSENATE REMEDIATION WITH NANO-GRAPHENE," WITH NICK GOW, 2010.  
TYLER BRODEN AND RYAN FOY, "COMPARISON OF MAGNETIC SEPARATORS," WITH CLIFFS NR, 2009.  
KERI CALDWELL AND IAN ST. JOHN, "PROCESS MODEL DEVELOPMENT," WITH CLIFFS NR, 2009.  
MERLE KALSTROM AND NICOLE LOEHR, "PARTICLE SIZE AND GREEN BALL STRENGTH," WITH CLIFFS NR, 2009.  
JACE MOON AND JOSH ROGERS, "FINE PARTICLE SIZE ANALYSIS," WITH CLIFFS NR, 2009.  
JACQUELINE GRAHAM, "MINERAL SEPARATES AS LUNAR SIMULANTS: MINOR OXIDES," WITH NASA, 2009.  
DANIELLE GRANLUND, "MINERAL SEPARATES AS LUNAR SIMULANTS: PLAGIOCLASE," WITH NASA, 2009.  
MICHAEL NELSON, "MINERAL SEPARATES AS LUNAR SIMULANTS: OLIVINE," WITH NASA, 2009.



JANET ROBINSON, "MINERAL SEPARATES AS LUNAR SIMULANTS: CLINOPYROXENE," WITH NASA, 2009.

PETER ROSSITER, "MINERAL SEPARATES AS LUNAR SIMULANTS: ORTHOPYROXENE," WITH NASA, 2009.

TYLER SALISBURY AND JERREY CLARK, "HMS OF A MONTANA COAL FOR ENVIRONMENTAL PURPOSES," 2008.

JOE BILANT, "HEAT AND MASS BALANCES OF FINISH MILL OPERATIONS AT ASH GROVE CEMENT," 2008.

ALEX MACGREGOR AND KATIE SCHUMACHER, "ANALYSIS OF AU ORE FROM NEWMONT'S TWIN CREEK MINE," 2007.

ROB STEPPER AND ERIN STEVENS, "CYANIDE LEACHING OF NEWMONT'S TWIN CREEK GOLD ORE," 2007.

KELLY MURPHEY AND NICK GOW, "THIOSULFATE LEACHING OF NEWMONT'S TWIN CREEK GOLD ORE," 2007.

TAYLOR FLOTRE AND MATT HUEY, "THIOCYANATE LEACHING OF NEWMONT'S TWIN CREEK GOLD ORE," 2007.

CAELEN ANDERSON AND ADAM HAMMES, "AU CYANIDATION IN THE PRESENCE OF  $\text{CuFeS}_2$  AND  $\text{Cu}_2\text{S}$ ," 2006.

JOSEF BILANT AND KELLY MURPHEY, "AU CYANIDATION IN THE PRESENCE OF  $\text{CuS}$  AND  $\text{CuAsS}$ ," 2006.

MATT HUEY AND ERIN STEVENS, "AU CYANIDATION IN THE PRESENCE OF  $\text{FeAsS}$  AND  $\text{Cu}_{12}\text{As}_4\text{S}_{13}$ ," 2006.

NICK GOW AND TAYLOR FLOTRE, "CN SPECIES THERMODYNAMICS AND SE TREATMENT PROCESS DEVELOPMENT," 2006.

ERIC STREICH, "ECONOMIC FEASIBILITY OF CEMENT SLURRY PRE-DRYING BEFORE THE ROTARY KILN," 2005.

KAREL PRAMONO, "HEAT BALANCES FOR SCRAP TIRE AS A FUEL/IRON SOURCE FOR CEMENT KILN," 2005.

MATT O'LEARY, "INTERACTION OF COMINCO AND KENNECOTT SMELTER SLAGS WITH BERKELEY PITLAKE ARD," 2005.

ERIN STEVENS, "PHOTOFORMATION AND CHARACTERIZATION OF TITANIUM DIOXIDE NANOPOWDER," 2005.

KELLY MURPHEY, "TITANIUM DIOXIDE NANOPOWDER FOR PHOTOREDUCTION OF SULFATE TO SULFIDE," 2005.

PHIL TEINTZE AND KAREL PRAMONO, "RECYCLE OF TEFLON & COPPER FROM CHOPPED WIRE," 2004.

MARTIN LYDERS AND KEVIN GOROSKI, "MODIFIED RECYCLING OF TEFLON AND COPPER FROM CHOPPED WIRE," 2004.

SONNY ADAMS AND ARON ANDERS, "VERMICULITE RECOVERY OF DILLON-MONTANA ORE," 2004.

DAVE DOUGLAS, RANDY HAMILTON AND BEN WILDE, "PRESSURE EFFECTS ON FLOTATION WITH AIRFLOW," 2003.

TYLER ANDERSON, DARBY STACY AND MARIE BOGGESE, "PRESSURE EFFECTS ON FLOTATION IN A GLOVEBOX," 2003.

JENNIFER GAMBILL, "CYANIDE MANAGEMENT BY CARBON ADSORPTION," 2003.

AMBER LINN, "GOLD-THIOSULFATE RECOVERY BY CARBON ADSORPTION," 2003.

JACOB HOHN, MARTIN LYDERS AND KEVIN GOROSKI, "RECYCLE OF TEFLON & COPPER FROM CHOPPED WIRE," 2003.

JENNIFER CONNING, "DETERMINATION OF PHYSICO-CHEMICAL CHARACTERISTICS OF ALRESIST CERAMIC TILES," 2002.

AMY STEPAN, ADAM HOUSE AND HUGH SCHIMANN, "PRESSURE EFFECTS ON FLOTATION," 2002.

DAN GUTSCHER, "DETERMINATION OF PHYSICO-CHEMICAL CHARACTERISTICS OF ABRESIST BASALT CERAMIC TILES," 2001.

ALICE DAVIES-DREW, "THERMODYNAMICS OF CYANIDE ADSORPTION BY VERMICULITE," 2001.

SHONNA D'HOOGHE, "THERMODYNAMIC EVALUATION OF  $\text{Fe(II)}$  &  $\text{Fe(III)}$  ADSORPTION ON VERMICULITE," 2000.

JOSLYN HUNT, "THERMODYNAMIC EVALUATION OF  $\text{Al(III)}$  AND  $\text{Mn(II)}$  ADSORPTION ON VERMICULITE," 2000.

ANDY HADDEN, "MINING TAILINGS SEPARATION FOR A NEW MARKET," 2000.

SHAMUS O'KEEFE, "CYANIDE ALTERNATIVE FOR LEACHING GOLD ORES," 1999.

ERIC DAHLGREN, "RECOVERING GOLD FROM NON-CYANIDE SOLUTIONS," 1999.

MATT GRIFFITH, "ENHANCING MINERAL HYDROPHOBICITY AT NON-SULFIDE MINERAL SURFACES," 1999.

ISRAEL JESSOP, "THERMODYNAMIC EVALUATION OF AMD ADSORPTION AT VERMICULITE SURFACES," 1999.

KEVIN RITARI, "FURTHER DEVELOPMENT OF A MINING TAILINGS INTO A MARKETABLE PRODUCT," 1999.

JOSH KNUTSON, "DEVELOPMENT OF A MINING TAILINGS INTO A MARKETABLE PRODUCT," 1998.

MATT GRIFFITH, "CONFIRMATION OF THE METHOD FOR ENHANCING MINERAL HYDROPHOBICITY," 1998.

BRENT MIKELSON, "REMEDIATION OF AMD BY ADSORPTION ONTO VERMICULITE," 1998.

JIM LLOYD, "GOLD BISULFIDE RECOVERY BY CARBON AND RESIN ADSORPTION," 1997.

RAY ZIOLKOWSKI AND TIM BARNETT, "GOLD BISULFIDE RECOVERY BY CEMENTATION," 1997.

CORY MARTIN AND DAVE KULZER, "SPL REMEDIATION USING EXTRACTIVE METALLURGY PRINCIPLES," 1997.

MARLO PRUSS, "METAL-CYANIDE REMEDIATION BY PHOTOLYSIS," 1996.

KIP SLAYBAUGH, "A NEW METHOD FOR ENHANCING MINERAL HYDROPHOBICITY," 1996.

BRENT MIKELSON, "CYANIDE REMEDIATION BY PHOTOCATALYSIS," 1996.

## **COURTNEY A. YOUNG, PHD, QP**

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RAY ZIOLKOWSKI AND TIM BARNETT, "SPL REMEDIATION BY MINERAL PROCESSING TECHNOLOGIES," 1996.

RAY ZIOLKOWSKI, "UP-GRADING SPENT LIME FOR INCREASED MARKET VALUE," 1995.

D.J. PATRICK, "SILVER ACCOUNTABILITY AT MONTANA TUNNELS," 1995.

### **ACADEMIC SERVICE**

#### **ADVISEE LETTERS**

KATIE BOZER, \$7500 GOLDWATER SCHOLARSHIP, 2020.

KATIE BOZER, \$3500, COAL PREPARATION SOCIETY OF AMERICA, 2020.

BEN SUSLAVICH, TMS, 1<sup>ST</sup> PLACE, UNDERGRADUATE BEST PAPER COMPETITION, 2020.

BEN SUSLAVICH, \$3500, COAL PREPARATION SOCIETY OF AMERICA, 2019.

NATHAN BURRINGTON, \$5000, ELLWOOD STEEL INTERNSHIP AND SCHOLARSHIP, 2019.

ETHAN BLEVINS, \$5000, ELLWOOD STEEL INTERNSHIP AND SCHOLARSHIP, 2019.

LUKE MCCULLOCH, \$10,000 COPPER CLUB SCHOLARSHIP, 2018.

JOHN HANSEN-CARLSON, \$1000 SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 2018.

BRIDGER HURLEY, \$10,000 COPPER CLUB SCHOLARSHIP, 2016.

STEVE BRODDY, \$2,000 RICHARD R. KLIMPEL/MPD SCHOLARSHIP, 2016.

MOLLY BROCKWAY, \$7500 GOLDWATER SCHOLARSHIP, 2016.

NICK GOW, \$5,000 IPMI SCHOLARSHIP, 2012.

ARIANNE ERICKSON, \$10,000 COPPER CLUB SCHOLARSHIP, 2010.

ROGER "SCOTT" LAMBSON, \$2000 MONTANA SPACE GRANT CONSORTIUM SCHOLARSHIP, 2010.

NICOLE LOEHR, \$10,000 COPPER CLUB SCHOLARSHIP, 2009.

MARIAM MELASHVILLI, \$10,000 AIME SMITH SCHOLARSHIP, 2008.

JOE BILANT, \$2,000 RICHARD R. KLIMPEL MINERAL/MPD SCHOLARSHIP, 2008.

ADAM HAMMES, \$1,000 MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 2007.

NICK GOW, \$10,000 ASM INTERNATIONAL SCHOLARSHIP, 2006.

ERIC STREICH, \$10,000 AIME SMITH SCHOLARSHIP, 2006.

KELLY MURPHEY, \$10,000 COPPER CLUB SCHOLARSHIP, 2005.

NICK GOW, \$2000, INTERNATIONAL SOCIETY OF EXPLOSIVE ENGINEERS (ISEE), 2005.

NICK GOW, \$1000, INTERNATIONAL SOCIETY OF EXPLOSIVE ENGINEERS (ISEE), 2004.

KAREL PRAMONO, \$2000 WAIMME SCHOLARSHIP, 2004.

DARBY STACEY, \$1000 SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 2004.

JAKE HOHN, \$2000 WAIMME SCHOLARSHIP, 2003 AND 2004.

JEN PREBLE, \$3000 WAIMME SCHOLARSHIP, 2003.

ADAM HOUSE, \$1000 SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 2002.

AMY STEPAN, \$1000 SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 2001.

TIM MCINERNEY, \$1000 TAU BETA PI, 2001.

CHRIS MCHENRY, \$2500 IRON & STEEL SOCIETY SCHOLARSHIP, 2001.

JENNIFER CONNING, \$10,000 COPPER CLUB SCHOLARSHIP, 2000.

ALICE DAVIES-DREW, \$1000 SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 2000.

KELCEY ECCLESTON, \$1000 SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 1999.

JOSLYN HUNT, \$10,000 COPPER CLUB SCHOLARSHIP, 1998.

SHAMUS O'KEEFE, \$1000 SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 1998.

KEVIN RITARI, \$2000 TMS SCHOLARSHIP, 1998.

KEVIN RITARI, \$5000 ASM SCHOLARSHIP, 1997.

LAUREN COCKHILL, \$2000 SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 1997.

LAUREN COCKHILL, \$10,000 COPPER CLUB SCHOLARSHIP, 1996.

## **COURTNEY A. YOUNG, PHD, QP**

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CORY MARTIN, \$2000, SME MINERAL AND METALLURGICAL PROCESSING DIVISION (MPD) SCHOLARSHIP, 1996.

AMY LAMB, \$1000, SME INDUSTRIAL MINERALS DIVISION SCHOLARSHIP (IMD) SCHOLARSHIP, 1996.

### **DEPARTMENT**

INTERNATIONAL DEPARTMENT STUDENT ADVISOR, 2008-2019.

DEPARTMENT HEAD, METALLURGICAL & MATERIALS ENGINEERING, 1998-2019.

CAREER SERVICES ADVISORY BOARD MEMBER, 1996-2008.

RECRUITER IN BUTTE, LINCOLN, GREAT FALLS, VANCOUVER, ETC., 1997-2008.

STUDENT ADVISOR, 1995-PRESENT.

CLUB MET STUDENT ADVISOR, 1995-PRESENT.

ANDERSON-CARLYLE STUDENT CHAPTER OF AIME ADVISOR (TMS & SME STUDENT CHAPTERS), 1995-PRESENT.

### **CAMPUS**

FACULTY SENATE, SPRING 2015 (INTERIM) AND 2017-PRESENT.

ADVISING/RETENTION STEERING COMMITTEE, 2016-PRESENT.

TRAFFIC COMMITTEE, 1998-2000; SPRING 2015 (INTERIM).

STRATEGIC PLANNING COMMITTEE, 2012-2016.

MONTANA TECH AND NCSA SOFTBALL CLUB, CO-ADVISOR AND TREASURER, 2006-2011.

FACULTY ADVISORY COMMITTEE FOR COLLEGE RELATIONS AND MARKETING, 2005-2016.

CENTER FOR ADVANCED SUPRAMOLECULAR AND NANO SYSTEMS (CASANS), CO-CHAIR, 2003-2012.

ENROLLMENT SERVICES ADVISORY BOARD MEMBER, 1997-2012.

UNDERGRADUATE RESEARCH COMMITTEE, CHAIR, 2002-2010.

LIBRARY COMMITTEE, INTERIM, 2009.

CURRICULUM REVIEW COMMITTEE, INTERIM, 2009.

BUDGET COMMITTEE, 2002-2006.

SCHOLARSHIP COMMITTEE, 1999-2007.

UNDERGRADUATE RESEARCH COMMITTEE, 1996-2011.

GRADUATE COUNCIL, 1998-2001.

FACULTY SENATE, 1997-1999.

SEARCH COMMITTEES:

CHAIR, METALLURGICAL & MATERIALS ENGINEERING SECRETARY, LED TO HIRING OF KRIS LEIPHEIMER, 2018.

MEMBER, METALLURGICAL & MATERIALS ENGINEERING SECRETARY, LED TO HIRING OF DARLENE VOSS, 2017.

CHAIR, METALLURGICAL ENGINEERING FACULTY, 2016-2017, LED TO HIRING OF DR. A. DAS, 2017.

MTECH REPRESENTATIVE, VP FOR RESEARCH AND CREATIVE SCHOLARSHIP, UM-MISSOULA, 2011-2012.

MEMBER, VC FOR DEVELOPMENT & ALUMNI RELATIONS/PRESIDENT OF MT TECH FOUNDATION, 2011-2012.

MEMBER, VC FOR RESEARCH/DEAN OF GRADUATE STUDIES, 2012-PRESENT.

MEMBER, METALLURGICAL ENGINEERING SECRETARY, LED TO HIRING OF KAREN HOLLAND, 2011.

CHAIR, METALLURGICAL ENGINEERING SECRETARY, LED TO HIRING OF ROBIN MCKERNAN, 2010.

MEMBER, METALLURGICAL ENGINEERING FACULTY, LED TO HIRING OF AL MEIER, 2010.

MEMBER, METALLURGICAL ENGINEERING SECRETARY, LED TO HIRING OF CHERYL DU TOIT, 2008.

MEMBER, METALLURGICAL ENGINEERING FACULTY, LED TO HIRING OF KV SUDHAKAR, 2007.

CHAIR, METALLURGICAL ENGINEERING NEWMONT LAB DIRECTOR, LED TO HIRING OF BILL GLEASON, 2007.

MEMBER, ASSISTANT TO THE DEAN, LED TO HIRING OF CRAIG BYINGTON, 2007.

CHAIR, METALLURGICAL ENGINEERING FACULTY, LED TO HIRING OF JERRY DOWNEY, 2005.

MEMBER, METALLURGICAL ENGINEERING SECRETARY, LED TO HIRING OF TAMMY ROSS, 2005.

CHAIR, METALLURGICAL ENGINEERING FACULTY, LED TO HIRING OF KEVIN JAANSALU, 2005.

## **COURTNEY A. YOUNG, PHD, QP**

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CHAIR, METALLURGICAL ENGINEERING SECRETARY, LED TO HIRING OF GAIL BERGMAN, 2003.  
MEMBER, SUB STUDENT SERVICES DIRECTOR, LED TO HIRING OF CHRIS VAN NULAND, 2002.  
CHAIR, METALLURGICAL ENGINEERING SECRETARY, LED TO HIRING OF TRACI FESOLWITZ, 2002.  
MEMBER, SOFTWARE ENGINEERING, LED TO HIRING OF 3 ASSISTANT PROFESSORS, 2001.  
MEMBER, COMPUTER SCIENCE, LED TO HIRING OF SABBATICAL-LEAVE REPLACEMENT PROFESSOR, 2001.  
MEMBER, VCAAR, LED TO HIRING OF DAN BRADLEY, 1998-1999.  
MEMBER, CAREER SERVICES, LED TO HIRING OF STACEY AGUIRRE, 1998.

### **PROFESSIONAL SERVICE**

#### ***CHAIRS AND VICE-CHAIRS***

SME COUNCIL OF EDUCATION, CHAIR, 2019-2021.  
SME IVAN B. RAHN EDUCATION AWARD, CHAIR, 2018-PRESENT.  
SME EDUCATION SUSTAINABILITY COMMITTEE, VICE-CHAIR, 2014-2018.  
SME PHD GRANT AND CAREER GRANT SELECTION COMMITTEES, CHAIR, 2016-2017.  
U OF UTAH, METALLURGICAL ENGINEERING GRADUATE PROGRAMS, WITH CHAIR DR. AMIT MISRA (U OF MICH) AND DR. BRENT HISKEY (U OF AZ), SEPTEMBER 2016.  
SME ACCREDITATION AND CURRICULAR ISSUES SUBCOMMITTEE, CHAIR, 2013-2015.  
MINERAL INDUSTRY EDUCATION AWARD, CHAIR, 2013-2014.  
SME MPD NOMINATING COMMITTEE, CHAIR, 2013 AND 2014.  
AIME JAMES DOUGLAS GOLD MEDAL AWARD COMMITTEE, CHAIR, 2012.  
SME MPD OUTSTANDING YOUNG ENGINEER IN HONOR OF SUBHASH CHANDER, CHAIR, 2012.  
AIME ROBERT H. RICHARDS AWARD, CHAIR, 2012.  
SME MPD EXECUTIVE COMMITTEE, CHAIR, 2011-2012.  
ROE-HOAN YOON SYMPOSIUM, CHAIR, 2009-2011.  
WORKSHOP FOR THE LUNAR APPLICATIONS OF MINING AND MINERAL BENEFICIATION, CO-CHAIR, 2010.  
ROBERT SHOEMAKER INTERNATIONAL 2008 HYDROMETALLURGY CONFERENCE, CO-CHAIR, 2007-2008.  
PRECIOUS METALS PROCESSING 2007, CO-CHAIR, 2006-2007.  
SME URANIUM SYMPOSIUM, CO-CHAIR, 2006-2007.  
TMS EPD AQUEOUS PROCESSING COMMITTEE, CHAIR, 2006-2007.  
J.D. MILLER SYMPOSIUM, CO-CHAIR, 2003-2004.  
TMS LEADERSHIP, EDUCATOR & APPLICATION TO PRACTICE AWARDS COMMITTEE, CHAIR, 2002-2004.  
IAN M. RITCHIE INTERNATIONAL 2003 HYDROMETALLURGY CONFERENCE, CO-CHAIR, 2002-2003.  
CYANIDE: SOCIAL, INDUSTRIAL AND ECONOMIC ASPECTS SYMPOSIUM, CO-CHAIR, 2000-2001.  
MINOR ELEMENTS 2000: AS, SB, SE, TE AND BI SYMPOSIUM, CO-CHAIR, 1999-2000.  
SME MPD REMEDIATION AND SECONDARY PROCESSING COMMITTEE, CHAIR, 1999-2000.  
MONTANA TECH CHAPTER OF SIGMA XI, THE SCIENTIFIC RESEARCH SOCIETY, PRESIDENT, 1996-1998.  
SNAKE RIVER SECTION OF THE SOCIETY FOR APPLIED SPECTROSCOPY, SECRETARY/TREASURER, 1995-1998.  
MONTANA SECTION OF SME, INTERIM CHAIR, 1995-1997.

#### ***COMMITTEES***

SME MPD EXECUTIVE COMMITTEE, TECHNICAL CONTENT ADVISOR, 2020-PRESENT.  
SME NOMINATIONS COMMITTEE, 2020-PRESENT.  
IVAN B. RAHN EDUCATION AWARD, 2013-2019.  
AIME MINERAL EDUCATION AWARD COMMITTEE, 2009-2011, 2017-2019.  
SME PHD GRANT AND CAREER GRANT SELECTION COMMITTEES, 2015-2019.  
AEMA, TRUSTEE, 2015-2018.

SME GOVERNMENT AND PUBLIC AFFAIRS COMMITTEE (GPAC), 2013-2016.  
TMS VITTORIO DE NORA PRIZE FOR ENVIRONMENTAL IMPROVEMENTS IN METALLURGICAL INDUSTRIES, 2012-2015.  
SME EDUCATION & SUSTAINABILITY TASK FORCE, 2012-2013.  
AIME ROBERT EARLL MCCONNELL AWARD COMMITTEE, 2012.  
SME MPD OUTSTANDING YOUNG ENGINEER IN HONOR OF SUBHASH CHANDER, 2010-2012.  
AIME ROBERT H. RICHARDS AWARD, 2011-2012.  
SME MPD EXECUTIVE COMMITTEE, 2006-2013; PAST CHAIR, 2012-2013.  
SME DISTINGUISHED MEMBER AWARD COMMITTEE, 2011-2012.  
SME MPD NOMINATING COMMITTEE, 2009-2013.  
AIME FRANK F. APLAN AWARD COMMITTEE, 2009-2012.  
TMS EPD COUNCIL, 2006-2007.  
TMS TECHNOLOGY AND RESEARCH COMMITTEE, 2002-2005.  
TMS STUDENT MEMBER AFFAIRS COMMITTEE, EPD COUNCIL MEMBER AND TMS REPRESENTATIVE, 2001-2005.  
SME WADSWORTH EXTRACTIVE METALLURGY AWARD COMMITTEE, 2000-2005.  
TMS LEADERSHIP, EDUCATOR & APPLICATION TO PRACTICE AWARDS COMMITTEE, 2000-2004.  
SME ACCREDITATION AND CURRICULAR ISSUES SUBCOMMITTEE, MPD REPRESENTATIVE, 1998-2000, 2011-2016.  
SME STUDENT MEMBER AFFAIRS SUBCOMMITTEE, MPD REPRESENTATIVE, 1997-2005.  
SME MPD SEPARATIONS COMMITTEE, 1997-PRESENT.  
TMS EPD RECYCLING COMMITTEE, 1997-PRESENT.  
SME MONTANA SECTION, SECTION REPRESENTATIVE, 1997.  
TMS ABET COMMITTEE, 1996-PRESENT.  
SME ABET COMMITTEE, 1996-PRESENT.  
SME REMEDIATION AND SECONDARY PROCESSING COMMITTEE, 1995-PRESENT.  
TMS AQUEOUS PROCESSING COMMITTEE, 1994-PRESENT.  
TMS PYROMETALLURGY COMMITTEE, 1994-PRESENT.

### **CONFERENCES, SYMPOSIA AND PROGRAMS**

FLOTATION 2020, 4<sup>TH</sup> INTERNATIONAL CONGRESS ON MINERAL FLOTATION, INTERMET CONFERENCE, HONORARY ORGANIZER, WITH MARCIAL MEDINA (CHAIR), ALFONSO MUNOZ, DAVID ESTRELLA, EMILIO DELGADO, HERNANDO VALDIVIA, DANIEL YATACO, PEDRO PAUCAR, JUAN ANES AND JUAN YANATOS, LIMA, PERU, SEPTEMBER 23-25, 2020.  
HYDROPROCESS 2013, 5<sup>TH</sup> INTERNATIONAL SEMINAR ON PROCESS HYDROMETALLURGY, GECAMIN CONFERENCE; ORGANIZED WITH GABRIEL MERUANE AND JAVIER GUEVARA, SANTIAGO, CHILE, JULY 10-12, 2013.  
ROE-HOAN YOON SYMPOSIUM, ORGANIZED WITH JERRY LUTTRELL, SME ANNUAL MEETING, DENVER, CO, FEBRUARY 28-MARCH 2, 2011.  
WORKSHOP FOR THE LUNAR APPLICATIONS OF MINING AND MINERAL BENEFICIATION, ORGANIZED WITH ERIC DAHLGREN, JENNIFER EDMUNSON AND DOUG RICKMAN, BUTTE, MT, OCTOBER 5-7, 2010.  
EUROPEAN METALLURGICAL CONFERENCE, GLOBAL GROWTH OF NONFERROUS METALS PRODUCTION, TMS REPRESENTATIVE AND SCIENCE ADVISORY BOARD MEMBER, INNSBRUCK, AUSTRIA, JUNE 28-JULY 1, 2009.  
ROBERT SHOEMAKER INTERNATIONAL 2008 HYDROMETALLURGY CONFERENCE, TMS, SME AND CIM JOINT FALL SYMPOSIUM, ORGANIZED WITH CORBY ANDERSON, PAT TAYLOR, AND YEONUK CHOI, PHOENIX, AZ, AUGUST, 2008.  
PRECIOUS METALS 2007, TMS AND SME JOINT FALL SYMPOSIUM, ORGANIZED WITH CORBY ANDERSON AND MARC LEVIER, TUCSON, AZ, OCTOBER, 2007.  
URANIUM SYMPOSIUM, SME ANNUAL MEETING, ORGANIZED WITH J. KYLE AND G. MCLEMORE, DENVER, CO, 2007.  
J.D. MILLER SYMPOSIUM, SME ANNUAL MEETING, ORGANIZED WITH JON KELLAR, JAREK DRELICH AND MIKE FREE, SALT LAKE CITY, UT, FEBRUARY, 2005.



IAN M. RITCHIE INTERNATIONAL 2003 HYDROMETALLURGY CONFERENCE, TMS, SME AND CIM JOINT FALL SYMPOSIUM, ORGANIZED WITH CORBY ANDERSON, AMY JAMES, BRYN HARRIS, DAVE DREISINGER, AND AKRAM ALFANTAZI, VANCOUVER, BRITISH COLUMBIA, AUGUST, 2003.

RECYCLING AND WASTE MINIMIZATION CONFERENCE, TMS FALL SYMPOSIUM, INTERNATIONAL ADVISOR, ORGANIZED WITH SEVERAL OTHERS, LULEA UNIVERSITY, LULEA, SWEDEN, JULY, 2002.

ADVANCEMENTS IN MATERIALS AND MATERIALS PROCESSING, ICAMMP-2002, INTERNATIONAL ADVISOR, ORGANIZED WITH SEVERAL OTHERS, IITKG-KUAGPUR, INDIA, FEBRUARY 1-3, 2002.

WASTE TREATMENT AND MINIMIZATION COMMITTEE, "CYANIDE: SOCIAL, INDUSTRIAL AND ECONOMIC ASPECTS," CO-ORGANIZED WITH LARRY TWIDWELL AND CORBY ANDERSON, 7 SESSIONS, 43 PAPERS ACCEPTED, AND ROUND TABLE DISCUSSION INCLUDED, TMS ANNUAL MEETING, NEW ORLEANS, LA, FEBRUARY 11-15, 2001.

METALLURGICAL PROCESSING FUNDAMENTALS COMMITTEE, "MINOR ELEMENTS 2000: METALLURGICAL AND ENVIRONMENTAL CONCERNS FOR AS, SB, SE, TE AND BI." CO-ORGANIZED WITH LARRY TWIDWELL, BOB ROBINS, TADAHISHA NISHIMURA, BRYN HARRIS, CORBY ANDERSON, KEVIN PURDY, BARB FILAS AND ARTHUR MONHEMIUS. SME ANNUAL MEETING, SALT LAKE CITY, UT, FEBRUARY 28 – MARCH 1, 2000.

SNAKE RIVER SECTION OF SAS, "FOURTH BIENNIAL MEETING," GRAND TARGHEE, WY, JUNE 27, 1998.

AQUEOUS PROCESSING COMMITTEE, "ADSORPTION, ION EXCHANGE AND SOLVENT EXTRACTION," TMS ANNUAL MEETING, SAN ANTONIO, TX, FEBRUARY 15-18, 1998.

RECYCLING COMMITTEE, "GENERAL RECYCLING OF NON-FERROUS METALS," TMS ANNUAL MEETING, SAN ANTONIO, TX, FEBRUARY 15-18, 1998.

YOUNG LEADER TUTORIAL, JOHN K. BORCHARDT, SHELL DEVELOPMENT COMPANY, "THE ROLE OF MINERALS IN PAPER MAKING AND PAPER RECYCLING," TMS ANNUAL MEETING, SAN ANTONIO, TX, FEBRUARY 15, 1998.

YOUNG LEADER TUTORIAL, ANDREW M. SHERMAN, FORD MOTOR COMPANY, "POTENTIAL FOR LIGHT WEIGHT MATERIALS IN AUTOMOBILES," TMS/ASM MATERIALS WEEK FALL MEETING, INDIANAPOLIS, IN, OCTOBER 20, 1997.

SNAKE RIVER SECTION OF SAS, "THIRD BIENNIAL MEETING," 2 SESSIONS, 18 PAPERS, WHITEFISH, MT, JUNE 29, 1996.

### **SESSION CHAIRS**

SME ANNUAL MEETING, "FLOTATION I," CO-CHAIR WITH B. VAZIRI HASSAS, 2020.

SME ANNUAL MEETING, "FLOTATION I," CO-CHAIR WITH RICK LADOUCEUR, 2019.

SME ANNUAL MEETING, "FLOTATION I," CO-CHAIR WITH TARUN BHAMBANI, 2018.

AEMA, "MINERAL PROCESSING /METALLURGICAL EXTRACTION FOR MINING SUSTAINABILITY," CO-CHAIR WITH MELANIE BOND, DECEMBER 8, 2017.

XXVIII INTERNATIONAL MINERAL PROCESSING CONGRESS (IMPC), "PHYSICAL CHEMISTRY OF FLOTATION VI," CO-CHAIR WITH MAREK PAWLIK, 2016.

XXVIII IMPC, "PHYSICAL CHEMISTRY OF FLOTATION V," CO-CHAIR WITH SUNMENG HU, 2016.

XXVIII IMPC, "PHYSICAL CHEMISTRY OF FLOTATION IV," CO-CHAIR WITH JAAKKO LEPPINEN, 2016.

MEI SUSTAINABLE MINERALS CONFERENCE, "TECHNICAL SESSION 3," CO-CHAIR WITH M. BENZAAZOUA, 2016.

SAIMM COPPER COBALT AFRICA CONFERENCE, "COPPER TECHNOLOGIES II," 2015.

HYDROMETALLURGY 2014, "RARE EARTH 2," 2014.

SME ANNUAL MEETING, "RESIDUAL METALS AND BY-PRODUCTS FROM WATER TREATMENT," CO-CHAIR WITH BRETT WATERMAN, 2014.

SME ANNUAL MEETING, "FLOTATION," CO-CHAIR WITH R. KAPPES, SEATTLE, WA, FEBRUARY 20, 2012.

MPD PLENARY SESSION CO-CHAIR, "MPD AWARDS," SME ANNUAL MEETING, DENVER, CO, MARCH 1, 2011.

WORKSHOP FOR THE LUNAR APPLICATIONS OF MINING AND MINERAL BENEFICIATION, "PROBLEM STATEMENTS," BUTTE, MT, OCTOBER 5-7, 2010.

HYDROMETALLURGY 2008, "THIOSULFATE," CO-CHAIR WITH G.A. HOPE, PHOENIX, AZ, AUGUST 17-20, 2008.

HYDROMETALLURGY 2008, "PLENARY SESSION," CO-CHAIR WITH P.R. TAYLOR, C.G. ANDERSON AND Y. CHOI, PHOENIX, AZ, AUGUST 17-20, 2008.

PRECIOUS METALS 2007, "RECOVERY PROCESSES FOR PRECIOUS METALS," CO-CHAIR WITH RONG YU WAN, TUCSON, AZ, 2007.

SME ANNUAL MEETING, "NANOSTRUCTURES AND NANOFUIDS," ST. LOUIS, MO, MARCH 27-29, 2006.

TMS ANNUAL MEETING, "GENERAL ABSTRACTS," SAN ANTONIO, TX, MARCH 13-16, 2006.

SME ANNUAL MEETING, "PROCESS FUNDAMENTALS," CO-CHAIR WITH J. KELLAR AND M. FREE, SALT LAKE CITY, UT, FEBRUARY 28-MARCH 2, 2005.

MAM '04, 2<sup>ND</sup> IUPAC INTERNATIONAL SYMPOSIUM ON MACRO- AND SUPRA- MOLECULAR ARCHITECTURE AND MATERIALS: FUNCTIONAL AND NANO SYSTEMS, "SESSION 4," MISSOULA, MT, JUNE 13-17, 2004.

TMS ANNUAL MEETING, "GENERAL SESSION I," CO-CHAIR WITH JOHN CHEN, CHARLOTTE, NC, MARCH 6-10, 2004.

HYDROMETALLURGY 2003, "METALLURGICAL FUNDAMENTALS," TMS FALL SYMPOSIUM, CO-CHAIR WITH PAT TAYLOR, VANCOUVER, BC, CANADA, AUGUST 23-27, 2003.

TMS ANNUAL MEETING, "MERCURY III," CO-CHAIR WITH KUMAR GANESAN, SAN DIEGO, CA, MARCH 11-15, 2003.

SME ANNUAL MEETING, "FILLER MATERIALS II," CHAIR, CINCINNATI, OH, FEBRUARY 28-MARCH 1, 2003.

RECYCLING AND WASTE MINIMIZATION CONFERENCE, TMS FALL SYMPOSIUM, CO-CHAIR WITH ANDREAS SIEGMUND, LULEA, SWEDEN, JULY 20-22, 2002.

TMS ANNUAL MEETING, "POLITICS AND SPILLS," CO-CHAIR WITH RAY BEEBE, NEW ORLEANS, LA, FEB 11-15, 2001.

SME ANNUAL MEETING, "GOLD PROCESSING," CO-CHAIR WITH L.G. TWIDWELL, SALT LAKE CITY, UT, FEBRUARY 28-MARCH 1, 2000.

SME ANNUAL MEETING, "METALLURGICAL PROCESSING FUNDAMENTALS I," CO-CHAIR WITH R. SPEARS, DENVER, CO, MARCH 1-4, 1999.

TMS ANNUAL MEETING, "GENERAL RECYCLING III: PHYSICAL PROCESSING" CO-CHAIR WITH R. STEPHENS, SAN DIEGO, CA, MARCH 1-4, 1999.

SNAKE RIVER SECTION OF THE SOCIETY FOR APPLIED SPECTROSCOPY, "FOURTH BIENNIAL MEETING," CO-CHAIR WITH R. RODRIGUEZ AND J. INGRAM, IDAHO FALLS, ID, JUNE 27, 1998.

SME ANNUAL MEETING, "METALLURGICAL PROCESSING FUNDAMENTALS II: ENVIRONMENTAL," CO-CHAIR WITH R.G. REDDY, ORLANDO, FL, MARCH 9-12, 1998.

TMS ANNUAL MEETING, ADSORPTION, ION EXCHANGE AND SOLVENT EXTRACTION VII: GENERAL HYDROMETALLURGY" CO-CHAIR WITH R.G. ROBINS, SAN ANTONIO, TX, FEBRUARY 8-12, 1998.

TMS ANNUAL MEETING, "GENERAL RECYCLING III: PHYSICAL PROCESSING" CO-CHAIR WITH SINHA DREW, SAN ANTONIO, TX, FEBRUARY 8-12, 1998.

SME ANNUAL MEETING, "METALLURGICAL PROCESSING FUNDAMENTALS I," CO-CHAIR WITH B. PESIC, DENVER, CO, FEBRUARY 24-27, 1997.

SNAKE RIVER SECTION OF THE SOCIETY FOR APPLIED SPECTROSCOPY, "THIRD BIENNIAL MEETING," CO-CHAIR WITH L. PALMER AND D. STROMMEN, WHITEFISH, MT, JUNE 29, 1996.

ELECTROCHEMICAL SOCIETY ANNUAL MEETING, "FOURTH INTERNATIONAL SYMPOSIUM ON ELECTROCHEMISTRY IN MINERAL AND METAL PROCESSING," CO-CHAIR WITH D. SCHUMANN, LOS ANGELES, CA, MAY 6-9, 1996.

SME ANNUAL MEETING, "METALLURGICAL PROCESSING FUNDAMENTALS I," CHAIR, PHOENIX, AZ, MARCH 11-14, 1996.

TMS ANNUAL MEETING, "GENERAL PYROMETALLURGY III," CO-CHAIR WITH O. ISHIKAWA, ANAHEIM, CA, FEB 4-8, 1996.

SME ANNUAL MEETING, "MINERAL PROCESSING FUNDAMENTALS VII - GENERAL II," CO-CHAIR WITH J.J. KELLAR, DENVER, CO, MARCH 6-9, 1995.

TMS ANNUAL MEETING, "INTERNATIONAL SYMPOSIUM ON THE TREATMENT AND MINIMIZATION OF HEAVY METAL-CONTAINING WASTES IV - PROCESSING OF FLY ASH, FLUE DUSTS AND SLAGS," CO-CHAIR WITH F. DOYLE, LAS VEGAS, NV, FEBRUARY 12-16, 1995.

## PEER-REVIEWS

EDITOR FOR *MINERAL PROCESSING AND EXTRACTIVE METALLURGY HANDBOOK*, 2013-2018.  
NATIONAL ACADEMIES, "URANIUM MINING IN VIRGINIA," 2011.  
ASSISTANT EDITOR FOR *MINERAL ENGINEERING*, 2010-2013.  
CO-EDITOR FOR PROCEEDINGS OF "ROE-HOAN YOON SYMPOSIUM," SME, LITTLETON, CO, 2011.  
CO-EDITOR FOR PROCEEDINGS OF "HYDRO 2008," SME, LITTLETON, CO, 2008.  
CO-EDITOR FOR PROCEEDINGS OF "J.D. MILLER SYMPOSIUM," SME, LITTLETON, CO, 2005.  
CO-EDITOR FOR PROCEEDINGS OF "HYDRO 2003," TMS, WARRENDALE, PA, 2003.  
KEY READER FOR *EUROPEAN JOURNAL OF MINERAL PROCESSING AND ENVIRONMENTAL PROTECTION*, 2002-2012.  
CO-EDITOR FOR PROCEEDINGS OF "CYANIDE: SOCIAL, INDUSTRIAL AND ECONOMIC ASPECTS," TMS, PA, 2001.  
EDITOR FOR PROCEEDINGS OF "MINOR ELEMENTS 2000," SME, LITTLETON, CO, 2000.  
ASSOCIATE EDITOR FOR *INTERNATIONAL JOURNAL OF MINERAL PROCESSING*, 1998-2014.  
KEY READER FOR *ASM METALLURGICAL AND MATERIALS TRANSACTIONS, B*, 1996-1998.  
232 PUBLICATIONS AND 43 PROPOSALS FOR VARIOUS JOURNALS, AGENCIES, AND ORGANIZATIONS, 1994-PRESENT.  
8 THESES/DISSERTATIONS FROM ABROAD (CURTIN U, MURDOCH U, GRIFFTH U, UNSW AND U CAPETOWN).

## SHORT COURSES

*PRINCIPLES OF MINERAL AND METALLURGICAL PROCESSING* WITH DR. CORBY ANDERSON OF COLORADO SCHOOL OF MINES:  
SME ANNUAL MEETING, MINNEAPOLIS, MN, FEB. 28, 2018; PHOENIX, AZ, FEB. 23, 2020.  
AEMA, RENO, NV, DEC. 3, 2019; RENO, NV, DEC. 5, 2017; RENO, NV, DEC. 6, 2016; SPOKANE, WA, DEC. 1, 2015; RENO, NV, DEC. 2, 2014; RENO NV, DEC 3, 2013; SPOKANE WA, DEC. 4, 2012; RENO NV, NOV. 29, 2011; SPOKANE WA, DEC. 5, 2010.  
GLOBAL URANIUM SYMPOSIUM, LARAMIE WY, SEPTEMBER 15, 2011.  
NATIONAL SUMMIT OF MINING, FAIRMONT HOT SPRINGS RESORT, GREGSON MT, MAY 2, 2010.  
*FUNDAMENTALS AND APPLICATIONS OF FIRE ASSAY* WITH CORBY ANDERSON, TOM MCINTYRE, GARY WYSS, JOHN KRSTULICH, CHRIS CRISTOPHERSON, WAYNE OLMSTEAD (RIP) AND PERIODICALLY BILL GLEASON AND PAUL MIRANDA, MONTANA TECH, BUTTE MT, 1997-PRESENT.

## COMMUNITY SERVICE

BOARD OF DIRECTORS, KIWANIS BUTTE-SUNSHINE CAMP FOR CHILDREN, PUBLIC RELATIONS COMMITTEE, 2012-PRESENT.  
TREASURER, TEAM DIGGER VOLLEYBALL, 2007-2008.  
COACH, WEST ELEMENTARY, VOLLEYBALL, 5<sup>TH</sup> GRADE, 2005 (2<sup>ND</sup> PLACE) AND 6<sup>TH</sup> GRADE, 2006 (CITY CHAMPIONS).  
LEAD JUDGE, SW REGIONAL SCIENCE FAIR, 2001-2008.  
COACH, TEAM DIGGER VOLLEYBALL, U12 AND U14 TEAMS, 2000-2006.  
CO-DEDICATOR, ARCO GREENWAY PROJECT, COLORADO TAILINGS SECTION IN HONOR OF SAM WORCESTER, 2000.  
INSTRUCTOR, EXPANDING YOUR HORIZONS, 2000.  
JUDGE, SW MONTANA COMMEMORATIVE COIN ARTIST COMPETITION, 1999.  
COACH, NORTHWEST LITTLE LEAGUE SOFTBALL, EMBROIDERY PLUS TEAM, 1998-2008 (CHAMPIONS IN 2001 AND 2002).  
EXPERT WITNESS, MONTANA LEGISLATURE, ANTI-INITIATIVE 137: CYANIDE PROCESSING OF OPEN PIT ORES, 1998-1999.  
PRESENTER, 1ST MEPYS REUNION, MINERAL EDUCATION PROGRAM FOR YOUNG SCHOLARS, TECHNICAL OUTREACH, 1996.  
JUDGE, SW REGIONAL FAIR, 1995-2002, 2005.  
JUDGE, WEST ELEMENTARY AND MARGARET LEARY ELEMENTARY, SCIENCE FAIRS, 1995-2006.