Microanalytical Reference Materials
Topical Conference
Colorado School of Mines
Golden, CO
Berthoud Hall Room 242

Tuesday, May 15

8:00-8:30 Registration, packet pick up, and opening remarks

8:30-9:15 O-01 **Klaus Peter Jochum**, Max Planck Institute for Chemistry
Microanalytical reference materials: successes and needs

9:15-9:45 O-02 **Nicholas W. M. Ritchie and Eric Steel**, NIST
What is a standard? NIST's perspective

9:45-10:15 O-03 **John.C. Rucklidge[1,2] and Mike.P.Gorton[1]**, [1]University of Toronto, [2]Astimex Scientific Limited
Selection of natural minerals for microanalytical reference materials

10:15-10:45 Break

10:45-11:30 O-04 Invited **John M. Hanchar[1], John Fournelle[2], C. Hayward[3], B. Dhuime[4,5], C. Münker[6], E. Mundy[1], and Chris M. Fisher[1,7]**, [1]Memorial University, [2]University of Wisconsin, [3]University of Edinburgh, [4]University of St. Andrews, [5]University of Bristol, [6]Universität zu Köln, Zülpicherstr, [7]Washington State University
Synthesis and characterization of Ti-Y-Zr-Nb-Hf-Ta-La-Nd-Sm-Gd-Dy-Er-Yb-Lu doped haploandesite glass reference materials

11:30-12:00 O-05 **William O. Nachlas**, University of Minnesota
Doping silica gel for the synthesis of trace element in quartz reference

12:00-12:40 Vendor Talks: IAG, SPI, Probe Software

12:40-1:30 Lunch

1:30-2:00 O-06 **Keith Savino**, University of Rochester
A new synthesis method of doped hydroxyapatite for reference materials

2:00-2:45 O-07 Invited **Michael Wiedenbeck**, Helmholtz Zentrum Potsdam
Challenges and strategies for the calibration of SIMS geochemical analyses

2:45-3:15 O-08 **Chris M. Fisher[1], John M. Hanchar[2], S.D. Samson[3], B. Dhuime[4,5], J. Blichert-Toft[6], J. D. Vervoort[1], R. Lam[7]**, [1]Washington State University, [2]Memorial University, [3]Syracuse University, [4]University of Bristol, [5]University of St Andrews, [6]Université Claude Bernard, [7]INCO Innovation Centre, MicroAnalysis Facility, Memorial University
The utility of synthetic minerals as in situ isotopic reference materials: an assessment of hafnium- rare earth element (REE) doped synthetic zircon

3:15-4:00 Break and Posters

4:00-4:30 O-09 **Allen. K. Kennedy[1] and Andreas Möller[2]**, [1]Curtin University, [2]University of Kansas
New monazite reference material for microanalysis

4:30-5:00 O-10 **Axel D. Renno**, Helmholtz-Institute Freiberg for Resource Technology
Element- and method-specific test for microhomogeneity of major and trace elements in reference materials

5:00 Adjourn

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Wednesday, May 16

8:00-8:45 O-11 Invited **Richard Ash**, University of Maryland
Standardization for natural and synthetic material analysis by LA ICP-MS

8:45-9:15 O-12 **Leonid Danyushevsky, J. Thompson, Sarah Gilbert**, University of Tasmania
Using LA-ICPMS for assessing consistency between published values for silicate glass reference materials: Can we see beyond the matrix-related elemental fractionation

9:15-9:45 O-13 **L.Paul Bédard and Alexandre Néron**, Sciences de la Terre, Université du Québec à Chicoutimi, Chicoutimi, QC Canada
Spatial geochemistry to characterize reference materials

9:45-10:15 O-14 **John Konopka**, Thermo Fisher Scientific
Introduction to quantitative analysis by energy dispersive spectroscopy

10:15-10:45 Break

10:45-11:15 O-15 **Nicholas Ritchie**, NIST
Breaking the 1% accuracy barrier in EPMA

11:15-11:45 O-16 **John Fournelle**, University of Wisconsin-Madison
Complexities of using natural minerals as standard reference materials: personal experiences from a geological microprobe lab

11:45-12:15 O-17 **Donggao Zhao**, University of Texas at Austin
Heterogeneity of the kakanui hornblende standard at the University of Texas at Austin

12:15-12:45 O-18 **Paul K. Carpenter[1] and Ed P. Vicenzi[2]**, [1]Earth and Planetary Sciences, Washington University, St. Louis and [2]Museum Conservation Institute, Suitland, MD
Mineral reference standards and quantitative electron-probe microanalysis

12:45-1:45 Lunch

1:45-2:15 O-19 **Juliane Gross[1] and Allan H. Treiman[2]**, [1]American Museum of Natural History, [2]Lunar and Planetary Institute
Lunar volatiles determined by electron microprobe: Lunar cordierite and apatite - compositions, volatile contents and implications on their origin

2:15-2:45 O-20 **Steve N. Guggino**, Arizona State University
Synthesis and characterization of five new fluorine-bearing basalt reference materials (Fba Glasses) and their use in quantifying the fluorine content of the basaltic glass standards BCR-2G, BHVO-2G, GSA-1G, GSC-1G, GSD-1G, GSE-1G, ML3B-G, KL2-G, and ALV-519-4

2:45-3:15 O-21 **Steve C. Kuehn**, Concord University
Secondary standards and sodium-loss: results from a large interlaboratory comparison using four natural volcanic glasses

3:15-3:45 Break

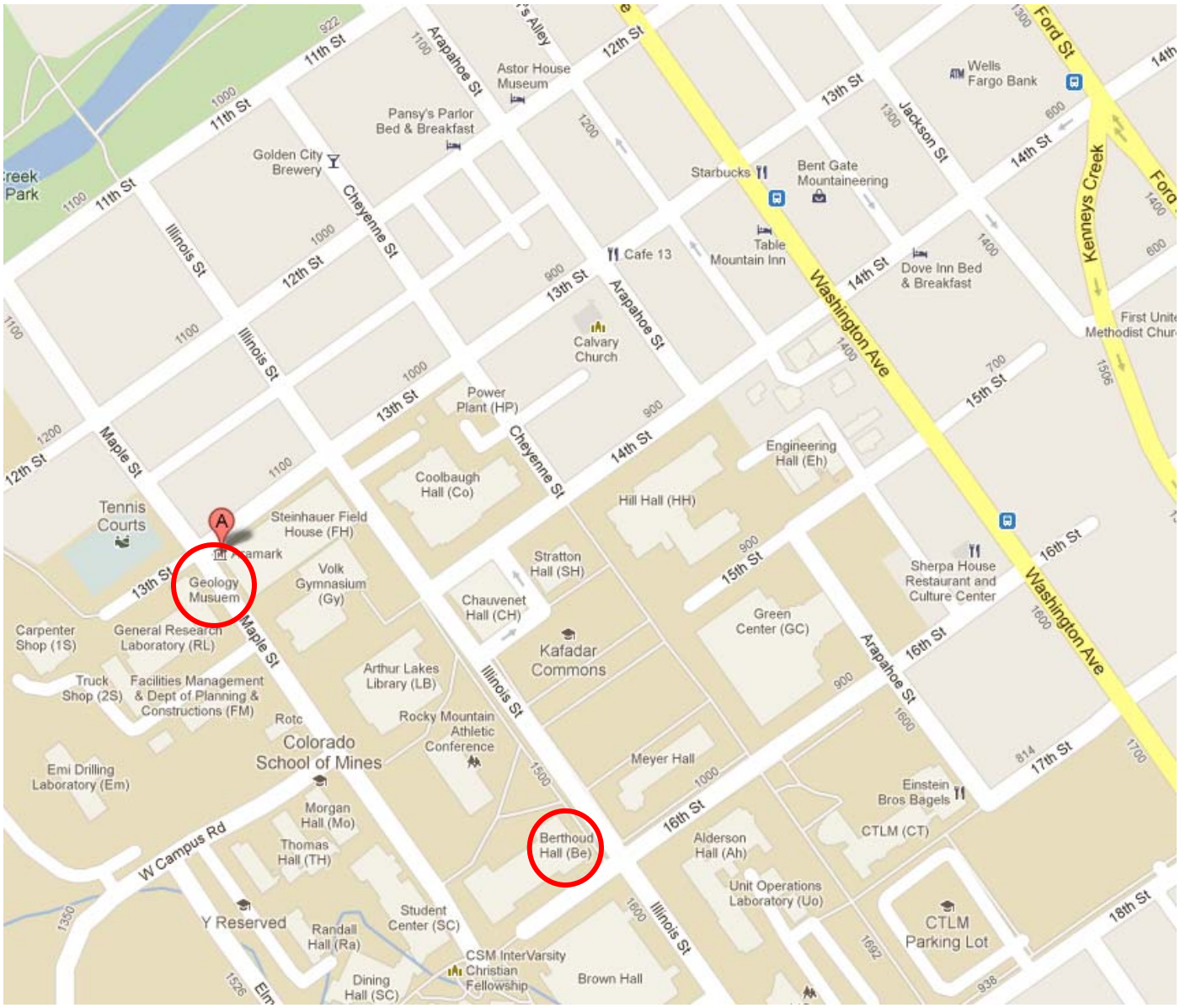
3:45-4:00 O-22 **Heather Lowers, Steve Wilson, and Alan Koenig**, USGS
Development of a basaltic glass microanalytical reference material for multiple techniques

4:00-4:15 **Steve Wilson,** USGS
Scoring of the round robin results

4:15-5:00 Discussion of round robin results

5:00 Adjourn

6:00-8:00 Reception in the Geology Museum (1301 Maple Street) Hors d'oeuvres and drinks will be served



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Thursday, May 17

8:15-8:45	O-23 **Craig S. Schwandt**, McCrone Associates, Inc *What are the requirements for forensic materials and particles standards?*
8:45-9:15	O-24 **Jeanne Spencer**, Reservoirs Environmental, Inc *Standard reference materials for NVLAP*
9:15-9:45	O-25 **Greg Meeker**, USGS *A national repository for standard reference materials for asbestos-related disease*
9:45-10:15	O-26 **Doug Stoeser**, USGS *The LHT (Lunar Highlands Type) lunar regolith simulant series*
10:15-11:00	Break and posters
11:00-11:30	O-27 **Karen E. Wright, J. A. King** Idaho National Laboratory *Preparation and analysis of actinide standards*
11:30-12:15	Vendor Talks: Newmont, FEI, Thermo, Cameca
12:15-1:15	Lunch
1:15-1:45	O-28 **Alan Butcher**, FEI *Rock texture revolutionized and reading the value of information locked in rock fabrics – Opportunities for new classification schemes*
1:45-2:15	O-29 **Sarah Haser[1], Axel D. Renno[2], A. Bartzsch[2], C. Weißflog[1], D. Sandmann[1], B. Schulz[1], J. Gutzmer[2]**, [1]Institute of Mineralogy, Freiberg, [2]Helmholtz-Institute Freiberg for Resource Technology *Reference materials in automated quantitative mineralogy – experiences and approaches at the Freiberg Geometallurgy Laboratory*
2:15-2:30	Break
2:30-3:00	O-30 **Brian Gorman**, Colorado School of Mines *Overview of atom probe tomography and its applicability to oxides*
3:00-3:30	O-31 **Tom Kelly**, Cameca *Standards for atom probe tomography*
3:30-4:00	O-32 **S.W. Parman[1], B.P. Gorman[2], C.R.M. Jackson[1], and R.F. Cooper[1]**, [1]Brown University, [2]Colorado School of Mines *Atom probe tomography of natural olivine: a potential APT reference material*
4:00-4:45	Break and Lab Tours
4:45-5:00	Wrap up and future directions

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POSTERS

Posters will be on display for the entire conference

P-01 **Steve Wilson, Alan Koenig, and RaeAnn Orklid-Norton,** USGS
USGS microanalytical reference materials: Current activities and future directions

P-02 **Alexandre Néron, L.Paul Bédard**, Sciences de la Terre, Université du Québec à Chicoutimi, Chicoutimi, QC Canada
Data processing for spatial geochemistry in reference materials

P-03 **Sarah Gilbert[1], Leonid Danyushevsky[1], P. Robinson[1], C. Wohlgemuth-Ueberwasser[2], N. Pearson[3], D. Savard[4], M.Norman[5], J. Hanley[6]**, [1]University of Tasmania, [2]University of Johannesburg, [3]GEMOC, Macquarie University, [4]Universite du Quebec a Chicoutimi, [5]Australian National University, [6]St. Mary's University
A comparative study of six reference materials used for the analyses of the platinum group elements and gold by LA-ICPMS

P-04 **Benjamin Wade**, The University of Adelaide
Development of a new Ga-Ge-S reference material for LA-ICP-MS investigation

P-05 **Alan Koenig**, USGS
A summary of highlights and hurdles of quantitative LA-ICP-MS with and without microanalytical reference materials

P-06 **John J. Donovan**, CAMCOR, University of Oregon
An examination of beam sensitive standards

P-07 **Catherin Crispin and John Armstrong**, Geophysical Laboratory, Carnegie Institution of Washington
Low voltage and low overvoltage x-ray nanoanalysis with field emission electron microprobes and SEMs: Problems in quantitation for first-row transition elements

P-08 **John H. Fournelle**, University of Wisconsin
Toward a quartz sandstone SEM-CL intensity imaging reference material

P-09 **Stephan Brémier, P. Pöml , F. Laheurte, R. Hasnaoui and C.T. Walker**, European Commission, Joint Research Centre, Institute for Transuranium Elements
Characterisation of a reference material for the direct quantification of the noble gas xenon in electron probe microanalysis

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