**Biochemistry and Redox Transformations of Iron**

**Dates:** August 5-8, 2014

**Location:** Telluride Intermediate School 735 W. Colorado Ave, Telluride Colorado 81435

**Organizers:** Michelle Scherer and Kevin Rosso

**TSRC Hosts:** Nana Naisbitt 970-708-0004 and Rory Sullivan 970-708-4542

**Aug 5 / Tuesday**8:00 Breakfast at TSRC

8:30 4 morning talks

12:00 Catered Lunch on Site

1:00 3 afternoon talks

6:00 – 7:15 TSRC Town Talk at the Telluride Conference Center 580 Mountain Village Blvd, Mountain Village

**Aug 6 / Wednesday**8:00 Breakfast at TSRC

8:30 4 morning talks
12:00 Catered Lunch on Site

1:00 5 afternoon talks

6:00 – 9:00pm TSRC Picnic at the Ah Haa School for the Arts, 300 S. Townsend, Telluride (Scientists, family, and guests welcome free of charge)

**Aug 7 / Thursday**Morning and early afternoon off for hiking!

5:00 – 9:00 pm 4 evening talks

**Aug 8 / Friday**

8:00 Breakfast at TSRC

8:30 4 morning talks

Meeting Adjourns at Noon sharp on Friday

**Telluride Workshop Program: Fe Biogeochemistry and Redox Workshop 2014**

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|  **Tuesday**  | **Aug 5** |  |
| *8:00 – 8:30* |  *Breakfast* | *At Telluride School (location of conference)* |
| **1** 8:30  | Glenn Waychunas | The initial mechanisms of iron oxyhydroxide precipitation: results from molecular spectroscopy and MD simulations. |
| **2** 9:15  | F. Marc Michel | The formation of nanominerals and their growth units. |
| *10:00 – 10:30* |  *Break* |  |
| **3** 10:30  | Jim De Yoreo | An in situ look at nanoparticle nucleation and particle-mediated growth. |
| **4** 11:15  | Bill Casey | Adding reactivity to structure - Isotope-exchange pathways in nanometer-size oxide ions in water |
| *12:00 – 1:00* |  *Lunch* | *At Telluride School* |
| **5** 1:00  | P. Zarzycki | Role of surface electrostatics in reactivity of the maghemite nanoparticles |
| **6** 1:45 | Clark Johnson | Isotopic properties of iron oxides and hydroxides and their application to redox evolution of Earth's surface environments |
| 7 2:30 | Ben Gilbert | Iron(II) complexation by natural organic matter |
|  **Wednesday**  | **Aug 6** |  |
| *8:00 – 8:30* |  *Breakfast* | *At Telluride School (location of conference)* |
| **7** 8:30  | Michelle Scherer | Fe(II)-catalyzed Fe oxide recrystallization revisited and moving forward |
| **8** 9:15  | Kevin Rosso | Advances in the molecular level view of Fe(II)-catalyzed Fe oxide recrystallization |
| *10:00 – 10:30* |  *Break* |  |
| **9** 10:30  | Jeff Catalano | Trace element redistribution during iron oxide recrystallization |
| **10** 11:15  | Anke Neumann | Fe(II)-driven mineral reorganization in Fe-containing clay minerals |
| *12:00 – 1:00* |  *Lunch* | *At Telluride School* |
| **11** 1:00  | Andrew Frierdich | Fe(II)-catalyzed oxygen isotope exchange between water and Fe(III) oxides |
| **12** 1:25  | Chris Gorski | Measuring and controlling reduction potentials in iron oxide suspensions |
| **13** 1:45  | Bill Burgos | Thermodynamic controls on the rate of low-pH Fe(II) oxidation and on the extent of clay-Fe(III) reduction |
| *2:30 – 3:00* |  *Break* |  |
| **14** 3:00  | Alexis S. Templeton | A discussion of how to test and apply models from Rosso, Scherer, Gorski and Neumann et al. to rocks: is Fe(II)-driven e-transfer active and relevant in geological systems |
| **15** 3:45  | Aaron Thompson | Why characteristic timescales really matter in fluctuating systems: Iron redox dynamics and a little bit of sediment transport |
|  *6:00 to 9:00*  |  *TSRC Picnic* |   |
|  **Thursday**  | **Aug 7** |  |
|  |  | *Morning and afternoon off for hiking, etc.*  |
| **15** 5:00 p.m. | Carrick Eggleston | Natural solar cells |
| **16** 5:45  | Andreas Kappler | A biogeobattery: redox cycling of Fe(II) and Fe(III) in magnetite by Fe-metabolizing bacteria |
| *6:30 – 7:00* |  *Break* |  |
| **17** 7:00  | Paul Tratnyek | Electrochemistry of iron and iron minerals: Toward a model system for environmental packed bed redox systems |
| **18** 7:45  | Carolyn Pearce | Applications of X-ray magnetic circular dichroism to iron redox transformations |
|  **Friday**  | **Aug 8** |  |
| *8:00 – 8:30* |  *Breakfast* | *At Telluride School (location of conference)* |
| **19** 8:30  | Hans Ch. Hansen | Synthesis, transformations and reactivity of organo-green rust |
| **20** 9:15  | Knud Didericksen | Green rust - stability, structure, and thoughts on the interlayer's role in redox reactions |
| *10:00 – 10:30* |  *Break* |  |
| **21** 10:30  | Richard Collins | Chemical and physical properties of reduced and oxidized (iron-rich) montmorillonites and their effects on uranium immobilization |
| **22** 11:15  | Thomas Borch | Fate of U and As in co-contaminated systems under various redox conditions |
|  |  | **Conference Adjourns at noon – lunch on your own** |

1. Thomas Borch (USA; Thomas.Borch@colostate.edu)
2. Bill Burgos (USA; WDB3@engr.psu.edu)
3. Bill Casey (USA; whcasey@ucdavis.edu)
4. Jeff Catalano (USA: catalano@levee.wustl.edu)
5. Richard Collins (Australia; richard.collins@unsw.edu.au)
6. Jim De Yoreo (USA; James.DeYoreo@pnnl.gov)
7. Knud Dideriksen (Denmark; knud@nano.ku.dk)
8. Carrick Eggleston (USA; Carrick@uwyo.edu)
9. Andrew Frierdich (USA; andrew-frierdich@uiowa.edu)
10. Ben Gilbert (USA; bgilbert@lbl.gov)
11. Chris Gorski (USA; gorski@engr.psu.edu)
12. Hans Chr. Bruun Hansen (Denmark; haha@plen.ku.dk)
13. Clark Johnson (USA: clarkj@geology.wisc.edu)
14. Andreas Kappler (Germany; andreas.kappler@uni-tuebingen.de)
15. Marc Michel (USA; mfrede2@vt.edu)
16. Anke Neumann (UK; Anke.Neumann@newcastle.ac.uk)
17. Carolyn Pearce (UK; Carolyn.Pearce@manchester.ac.uk)
18. Kevin Rosso (USA; Chair; Kevin.Rosso@pnl.gov)
19. Michelle Scherer (USA; Chair; michelle-scherer@uiowa.edu)
20. Alexis Templeton (USA; alexis.templeton@colorado.edu)
21. Aaron Thompson (USA; AaronT@uga.edu)
22. Paul Tratnyek (USA; tratnyek@ebs.ogi.edu)
23. Glenn Waychunas (USA: gawaychunas@lbl.gov)
24. Piotr Zarzycki (USA: zarzycki.piotrek@gmail.com)