**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**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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](mailto:Thomas.Borch@colostate.edu))
2. Bill Burgos (USA; [WDB3@engr.psu.edu](mailto:WDB3@engr.psu.edu))
3. Bill Casey (USA; [whcasey@ucdavis.edu](mailto: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](mailto:knud@nano.ku.dk))
8. Carrick Eggleston (USA; [Carrick@uwyo.edu](mailto:Carrick@uwyo.edu))
9. Andrew Frierdich (USA; andrew-frierdich@uiowa.edu)
10. Ben Gilbert (USA; [bgilbert@lbl.gov](mailto: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](mailto: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](mailto:Kevin.Rosso@pnl.gov))
19. Michelle Scherer (USA; Chair; [michelle-scherer@uiowa.edu](about:blankmichelle-scherer@uiowa.edu))
20. Alexis Templeton (USA; [alexis.templeton@colorado.edu](mailto:alexis.templeton@colorado.edu))
21. Aaron Thompson (USA; AaronT@uga.edu)
22. Paul Tratnyek (USA; [tratnyek@ebs.ogi.edu](mailto:tratnyek@ebs.ogi.edu))
23. Glenn Waychunas (USA: [gawaychunas@lbl.gov](mailto:gawaychunas@lbl.gov))
24. Piotr Zarzycki (USA: [zarzycki.piotrek@gmail.com](mailto:zarzycki.piotrek@gmail.com))