



APS/IIT Summer XAFS School

Now accepting applications

July 8-12, 2013

Illinois Institute of Technology

Department of Physics

31st and State St.

Chicago, IL 60616



This XAFS summer school is a continuation of the week-long summer school offered annually at the Advanced Photon Source, and again the venue will be at IIT in Chicago. Course material will cover fundamental and practical aspects of X-ray Absorption Fine Structure Spectroscopy: sample preparation, experiment, theory, data analysis.

One day of hands-on experiments will be carried out by participants at several APS beamlines, followed by a guided data analysis laboratory using Athena/iFEFFIT and other programs. Computers will be available for those participants attending without their own laptops. The target audience is graduate students, postdocs, and other scientists who are new to XAFS and want to use it in their own research. Space is available for up to 40 students.

Instructors include: Dr. Steve Heald (ANL), Dr. Matt Newville (UChicago), Prof. Bruce Bunker (U Notre Dame), Prof. Carlo Segre (IIT), Prof. Grant Bunker (IIT), and a number of other experienced XAFS researchers also will participate.

The cost of the course is \$500 USD, which covers most meals. Students will be responsible for their own housing (available on and off IIT campus) and travel to/from their home institutions. IIT is readily accessible by car, cab, and CTA train from O'Hare and Midway airports. Free time will be available most evenings for participants to visit Chicago attractions such as Grant Park, the Loop, Millennium Park, Lake Michigan; music, architecture, art, theater; Chinatown, White Sox, Field Museum, Shedd Aquarium, Adler Planetarium, and Navy Pier, restaurants, and pubs.

Please email bunker@iit.edu with subject line "2013 XAFS School" for more information

Schedule Outline (subject to modification)

M1: Lecture: Introduction and overview of XAFS, history, examples

M2: Lecture: Theory: Basic theory and interpretation of EXAFS and XANES

M3: Lecture: Experimental: synchrotron radiation, beamlines, detectors

M4: Lecture: Experimental: choosing measurement modes, geometry, sample preparation methods

T1: Lecture: Data Analysis: Data reduction methods, Fourier methods

T2: Lecture: Data Analysis: Data models, fitting, information content, confidence intervals

T3-T4: Lab: sample preparation and characterization

W1-4: *all day* Lab: Measurements at Advanced Photon Source

R1: Lecture: Theory: Calculation of Theoretical XAFS spectra

R2: Lecture: Theory: Disordered systems and other complications

R3: Lab: Calculating theoretical spectra with FEFF 8 and other programs

R4: Lab: Reduction and Analysis of APS data

F1: Lecture: Related Techniques: IXS, Raman, DAFS, XMCD

F2: Lab: Reduction and Analysis of APS data (continued)

F3: Parallel session: Data Analysis Lab/Consult on special problems

F4: Lecture: Sketch of advanced/related topics, and conclusion

| Outline Schedule | Sun 7/7 | Mon 7/8 | Tue 7/9 | Wed 7/10 | Thu 7/11 | Fri 7/12 |
|------------------|------------------|------------|------------|-----------|------------|------------|
| 8:00-9:00 AM | – | Breakfast | Breakfast | Breakfast | Breakfast | Breakfast |
| 9:00-10:15 AM | – | M1 | T1 | W1->ANL | R1 | F1 |
| 10:15-10:45 AM | – | coffee/tea | coffee/tea | – | coffee/tea | coffee/tea |
| 10:45 AM -12:00 | – | M2 | T2 | W2 | R2 | F2 |
| 12:00-1:30 PM | – | Lunch | Lunch | – | Lunch | Lunch |
| 1:30-2:45 PM | – | M3 | T3 | W3 | R3 | F3 |
| 2:45-3:15 PM | – | coffee/tea | coffee/tea | – | coffee/tea | coffee/tea |
| 3:15-4:30 PM | – | M4 | T4 | W4->IIT | R4 | F4 |
| 6:00 PM | <i>Reception</i> | Dinner | Dinner | Dinner | Dinner | Dinner |
| Evenings | Open | Open | Open | Open | Open | – |