High-pressure EXAFS investigations of Ge-bearing compounds
MARIA BALDINI, Geological and Environmental Sci., Stanford University, CA;
SIMES, SLAC National Accelerator Laboratory, 2575 Sand Hill Road, Menlo Park,
CA, GIULIANA AQUILANTI, European Synchrotron Radiation Facility, Grenoble,
France; Sincrotrone Trieste, Area Science Park, Basovizza Trieste, Italy, HOKWANG MAO, Geophysical Laboratory, Carnegie Institution of Washington, Washing-
ton, DC 20015;HPCAT, HPSynC Carnegie Institution of Washington, Argonne,
IL 60439, WENG YANG, GUOYING SHENG, HPCAT and HPSynC Carnegie Insti-
tution of Washington, Argonne, IL 60439, USA, SAKURA PASCARELLI, European
Synchrotron Radiation Facility, Grenoble, France, WENDY L. MAO, Geological and
Environmental Sci., Stanford University, CA; SIMES, SLAC National Accelerator
Laboratory, 2575 Sand Hill Road, Menlo Park, CA — The Ge K edge of amorphous
GeO$_2$ was studied by Extended X-ray Absorption Fine Structure (EXAFS) upon
increasing and decreasing pressure cycles up to 44 GPa [1]. Up to 13 GPa, the local
structure was well described by a 4-fold coordination model. A disordered region
formed by a mixture of 4- and 5-coordinated Ge polyhedra was observed in the in-
termediate pressure range between 13 and 30 GPa, and above 30 GPa the structural
transition to the maximum coordination was complete. Preliminary EXAFS results
obtained on crystalline Ge and on GeH$_4$ compounds will be also presented.
Mao, Phys. Rev. B in press