

CHUNTAO LIANG

CONTACT

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SKILLS

- Extensive experience in seismic tomography, interferometry imaging (passive seismic imaging), numerical computing, and linear and nonlinear seismic inversion.
- Solid background on theoretical seismology, geophysics, physics and mathematics.
- Good programming skills, developed most of the codes used in the research; Familiar with parallel computing. Good at GUI development.
- Actively involved in field data acquisition using geophones and broadband seismometers. Have the experience of Vibroseis data acquisition.

EDUCATION

Ph.D., Geophysics, expected May 2008, Department of Earth Science, University of Memphis, TN, USA. Concentration: Seismology

M.S., Geophysics, December 2003, Department of Geology, University of Illinois at Urbana Champaign, IL, USA. Concentration: Seismology

M.S., Geophysics, August 2001, Chengdu University of Technology, Sichuan, China. Concentration: Seismology

B.S., Geophysics, June 1996, Chengdu University of Technology, Sichuan, China. Concentration: Applied geophysics

WORK EXPERIENCE

- **Internship, Interferometry Imaging, MicroSeismic Inc., May to August, 2007**

Co-developed a working flow for the interferometry imaging technique to extract reflectivity out of noise data recorded from oil fields; proposed and implemented several crucial modifications to the original working flow; re-coded the cross-correlation program that improves the computing efficiency for at least two times; conducted many numerical experiments to test the theory and techniques; gained the hands-on experience of data processing in oil industry. The team work environment in the company is invaluable experience. For final results, several reflectors at shallow depth can be clearly identified on the NMO stacked time section;

RESEARCH EXPERIENCE

- **Ambient Noise Tomography (interferometry imaging)**
Applied this technique to the eastern North America; Obtained an unprecedented high resolution group velocity map for this region (details on my web, paper in press).
- **Wave Gradients Analysis**
Use dense seismic arrays to measure the spatial gradients of wave amplitudes and then to find earth structure, wave directionality and amplitude variations in radial and azimuthal directions. Given the dense array in gas and oil industry, this new technique should have broad applications to improve the resolution of structure imaging and fracture monitoring. (Details on my web, paper in review).
- **Seismic Tomography**
Eight years of seismic tomography (body wave and surface wave) experience. Coded most of the programs from data processing to final inversion. Familiar with all major aspects of this technique. Published three papers about tomography in the major peer-reviewed journals.

SELECTED PUBLICATIONS

Liang, C., C. A. Langston (2007), Ambient Seismic Noise Tomography and Structure of Eastern North America, *J. Geophys. Res.*, in press

Liang, C., C. A. Langston, Wave Gradiometry for USArray (1): Rayleigh waves, in review.

Langston, C. A., **C. Liang (2007)**, Gradiometry for polarized seismic waves, in review.

Liang, C., and X. Song (2006), A low velocity belt beneath northern and eastern Tibetan Plateau from Pn tomography, *Geophys. Res. Lett.*, 33, L22306, doi:10.1029/2006GL027926.

Liang, C., X. Song and J. Huang (2004), Tomographic inversion of Pn travel times in China, *J. Geophys. Res.*, 109, B11304, doi: 10.1029/2003JB002789

Liang, C., C. A. Langston (2004), Three Component receiver functions of array data. AGU annual meeting abstract.

Travel Grants

Earthscope workshop: **Controlled Source Seismology**, San. Antonio, TX, 2007.

Earthscope workshop: **Advanced Seismic Imaging**, St. Louis, MO, 2006.