



## Chuanhai Tang

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### School Address

Dept. of Geological Sciences  
University of North Carolina  
Chapel Hill, NC 27599  
United States

### Home Address

1105 NC Hwy 54 Bypass  
Apt. Q-5  
Chapel Hill, NC 27516  
United States

### Education

#### University of North Carolina at Chapel Hill

Ph.D. in Geophysics/Seismology  
December 2008 (Expected)

#### Institute of Geophysics, China Seismological Bureau, Beijing, China

M.S. in Solid Earth Geophysics  
August 1999

#### University of Science and Technology of China, Hefei, China

B.S. in Geophysics  
July 1996

### Professional Skills

**Expert on reservoir modeling and monitoring:** use shear wave splitting technique above micro-earthquakes to model the fracture system in geothermal reservoirs and monitor the fluid migration in the reservoirs and temporal variations of fluid pressure, especially before, during and after injection.

**Expertise in seismic wave propagation:** location of seismic events, shear-wave splitting detection and measuring, forward modeling and inversion of subsurface crack system, seismic wave form simulation, crack-induced seismic anisotropy in upper crust.

**Proficient programming skills:** the co-author of a GUI-based software towards automatic, real-time detection of subsurface cracks in geothermal fields using shear-wave splitting. Experiences with Fortran, C, and Perl programming languages.

**Experienced user of mathematical software** such as R, MatLab, and SAS.

### Academic Honors

#### Summer Research Fellowship (2005, 2006, 2007, 2008)

Awarded by the Department of Geological Sciences to support promising graduate students to conduct their research during the summer

#### Travel Grant from the McCarthy Memorial Fund

Award given to outstanding graduate students from the Department of Geological Sciences to present their work at conferences and meetings domestically and internationally

#### Excellent Graduate Scholarship, 1997

From the Institute of Geophysics, China Seismological Bureau, Beijing, China

#### Excellent Graduating Student Scholarship, 1996

#### Guanghua Scholarship, 1994

Both awarded by the University of Science and Technology of China, Hefei, China

### Research Experience

#### University of North Carolina, Geological Sciences, Chapel Hill, NC

January 2005 – present, Research Assistant

Ph.D. Dissertation Research

Detecting and modeling subsurface fracture systems in geothermal fields using shear-wave splitting

**Duke University, Electrical and Computer Engineering, Durham, NC**  
September 2003 -- August 2004, Research Assistant

**Field trip to Montserrat, West Indies** in July 2002 to participate in an international joint study on Soufriere Hills Volcano

**Institute of Geophysics, China Seismological Bureau, Beijing, China**  
September 1996 -- August 1999, Research Assistant

M.S. Thesis Research  
Geodynamic simulation of the late Cenozoic rejuvenated mountain building in Tien Shan region

**Teaching Experience** **University of North Carolina, Geological Sciences, Chapel Hill, NC**  
Projected to teach Geology Lab in Fall 2008 semester

**Duke University, Earth and Ocean Sciences, Durham, NC**  
September 2001 -- August 2003, Teaching Assistant

**Employment History** **Institute of Geophysics, China Seismological Bureau, Beijing, China**  
September 1999 -- August 2001

Research Assistant  
Telemetric seismic arrays and real-time seismic data analysis

**Affiliations** Member, American Geophysical Union (AGU)

Member, Society of Exploration Geophysicists (SEG)

**Publications** Tang, C., Rial, J. A., and Lees, J. M. (2008). Automatic, Real-time Detection of Subsurface Cracks in Geothermal Fields Using Shear-wave Splitting. (In preparation).

Tang, C., Rial, J. A., and Lees, J. M. (2008). Modeling Subsurface Cracks in the Hengill Geothermal Field, Iceland Using Shear-wave Splitting and Waveform Simulation. (In preparation).

Zhao, Y., Tang, C., and Rial, J. A. (2008). A New Approach for the Automatic Detection of Shear-wave Splitting. Submitted to *Geophysical Journal International*.

Tang, C., Rial, J. A., and Lees, J. M. (2008). Seismic Imaging of the Geothermal Field at Krafla, Iceland Using Shear-wave Splitting. *Journal of Volcanology and Geothermal Research*, doi:10.1016/j.jvolgeores.2008.04.017.

Rial, J. A., Tang, C., and Steffen, K. (2007). Greenland's Glacial Rumbings: Indicators of Rapid Ice Sheet Response? New kind of glacial earthquakes suggest mechanism for abrupt ice sheet disintegration. Submitted to *Journal of Glaciology*.

Tang, C., Rial, J. A., and Lees, J. M. (2006). Shear-wave splitting: A diagnostic tool to monitor fluid pressure in geothermal fields. *Proc. Geothermal Reservoir Engineering*, Stanford, 31, 508-511.

Tang, C., Rial, J. A., Lees, J. M., and Elkibbi, M. (2006). Shear-wave splitting observations and measurements at the Geothermal Field at Hengill, Iceland. *Proc. Geothermal Reservoir Engineering*, Stanford, 31, 512-517.

Tang, C., Rial, J. A., and Lees, J. M. (2005). Shear-wave splitting: A diagnostic tool to monitor fluid pressure in geothermal fields. *Geophysical Research Letters*, 32, L21317, doi:10.1029/2005GL023551.

Tang, C., Rial, J. A., Lees, J. M., and Thompson, E. (2005). Seismic Imaging of the Geothermal Field at Krafla, Iceland. *Proc. Geothermal Reservoir Engineering*, Stanford, 30, 464-471.

Tang, C., and Zhu, Y. (1998). Primary results of numerical simulation of Tien Shan orogeny (abstract). *Sino-US Joint Workshop on Geodynamics and Seismic Hazard*, Shanghai, China, 12.

Tang, C., and Zhu, Y. (1998). A comment on the thin-viscous-sheet model of lithospheric deformation in continental collision. *Recent Developments in World Seismology*. 12, 1-6.

## Conferences

### Oral presentation

Tang, C., Rial, J. A., and Lees, J. M. (2007). Seismic Imaging of Hengill Geothermal Field, Iceland Using Shear-wave Splitting and Waveform Simulation. *5th Annual Anadarko Research Symposium at UNC-Chapel Hill*, Chapel Hill, NC

Tang, C., Rial, J. A., Lees, J. M., and Elkibbi, M. (2006). Shear-wave splitting observations and measurements at the Geothermal Field at Hengill, Iceland. *Workshop on Geothermal Reservoir Engineering*, Stanford, CA

Tang, C., Rial, J. A., Lees, J. M., and Thompson, E. (2005). Seismic Imaging of the Geothermal Field at Krafla, Iceland. *Workshop on Geothermal Reservoir Engineering*, Stanford, CA

### Poster presentation

Tang, C., Rial, J. A., and Lees, J. M. (2008). Seismic Imaging of the Geothermal Field at Krafla, Iceland Using Shear-wave Splitting. *IAVCEI General Assembly*, Reykjavik, Iceland, Abstract no. 1127

Tang, C., Rial, J. A., and Zhao, Y. (2008). Automatic, Real-time Detection of Subsurface Cracks in Geothermal Fields Using Shear-wave Splitting. *AGU Joint Assembly*, Fort Lauderdale, FL, Abstract S43A-01

Tang, C., Zhao, Y., and Rial, J. A. (2007). Towards Automatic, Real-time Detection of Subsurface Cracks in Geothermal Fields Using Shear-wave Splitting. *AGU Fall Meeting*, San Francisco, CA, Abstract V41A-0396

Rial, J. A., Tang, C., and Steffen, K. (2007). A Closer View of Glacial Earthquakes Around Jakobshavn Glacier, Greenland, Using a Portable Seismic Array. *AGU Fall Meeting*, San Francisco, CA, Abstract GC13A-0935

Tang, C., Rial, J. A., and Lees, J. M. (2006). Seismic Imaging of the Hengill Geothermal Field, Iceland Using Shear-wave Splitting. *AGU Fall Meeting*, San Francisco, CA, Abstract T13A-0496

Tang, C., Rial, J. A., Lees, J. M., and Elkibbi, M. (2006). Shear-wave splitting observations and measurements at the Geothermal Field at Hengill, Iceland. *4th Annual Anadarko Research Symposium at UNC-Chapel Hill*, Chapel Hill, NC

Tang, C., Rial, J. A., Lees, J. M., and Thompson, E. (2005). Seismic Imaging of the Geothermal Field at Krafla, Iceland. *3rd Annual Anadarko Research Symposium at UNC-Chapel Hill*, Chapel Hill, NC

## References

Available upon request