

## Ludmila Adam

---

### CONTACT INFORMATION

The University of Auckland  
Science Centre, Room 1032  
23 Symonds Street  
Auckland, New Zealand

*Phone:* 64 21 024 82317  
*e-mail:* l.adam@auckland.ac.nz

### RESEARCH INTERESTS

Elastic and viscoelastic rock physics and well logging. Quantitative seismic data analysis for reservoir properties. Seismic methods and borehole geophysics to quantify rock and fluid properties. Rock-fluid interactions and its effects on geophysical properties. 2D, 3D and time-lapse seismic interpretation. Oil and gas reservoir characterization, CO<sub>2</sub> sequestration, geothermal and volcanology.

### EDUCATION

**Colorado School of Mines**, Golden, Colorado USA

Ph.D. in Geophysics (Rock Physics Laboratory), May 2009

- Dissertation title: Elastic and visco-elastic laboratory properties in carbonates
- Advisor: Dr. Michael Batzle

M.sc. in Geophysics (Reservoir Characterization Project), May 2004

- Dissertation title: Anisotropic parameter estimation from borehole seismic data at Weyburn Field: uncertainty and resolution
- Advisor: Dr. Thomas Davis

**Universidad Simón Bolívar**, Caracas, Venezuela

Bachelor in Geophysical Engineering, May 2000

### APPOINTMENTS

- ◇ Lecturer, School of Environment, University of Auckland (September 2012-present)
- ◇ Assistant Research Professor, Department of Geosciences, Boise State University (September 2009-present)
- ◇ Adjunct Faculty, Department of Geosciences, Boise State University (January 2009-September 2009)
- ◇ Research Assistant, Center for Rock Abuse, Department of Geophysics, Colorado School of Mines (January 2004-December 2008)
- ◇ Intern, ExxonMobil Upstream Research Company (September-December 2006): Integrated analysis of core laboratory data, surface seismic forward modeling and 4D seismic data for estimating time-lapse intrinsic attenuation.
- ◇ Research Assistant, Reservoir Characterization Project, Department of Geophysics, Colorado School of Mines (August 2001-December 2003)
- ◇ Intern, BP (June-September 2003): Multidisciplinary seismic interpretation of turbidite systems and salt movement in deep-water Gulf of Mexico.
- ◇ Intern, PGS Onshore (May-July 2002): 3D VSP processing for the analysis of seismic attributes of the downgoing wavefield.
- ◇ Geophysicist, SINCOR (joint venture of TOTAL, PDVSA and STATOIL) (2000-2001): Integrated seismic data, well logs and proposed well locations for production of heavy oil reservoirs.
- ◇ Intern, PDVSA E&P and INTEVEP (September 1999-April 2000): worked on my bachelor thesis.
- ◇ Teaching Assistant, Universidad Simón Bolívar.

COURSES TAUGHT

- ◇ **University of Auckland:** Tectonics and Crustal Evolution (GEOL305), Research Practice in Earth, Environmental and Geographical Sciences (ENV701)
- ◇ **Boise State University:** Physics of the Earth (GEOPH300), Borehole Geophysics (GEOPH410/GEOPH597). Integrated Reservoir Analysis (GEOS497-597/GEOPH497-597). Basin Evaluation Project (GEOPH597). Osher Lifelong Learning Institute class on *Energy Exploration and Reserves in the United States* (2011).
- ◇ **Simón Bolívar University:** teaching assistant for Application of Digital Filters for Geophysicists and Introduction to Geology.

PEER-REVIEWED PUBLICATIONS

- Kramers-Kronig and Cole-Cole modeling for frequency dependent elasticity in saturated basalt  
**L. Adam.** In preparation
- Remote Sensing of the Reactions between Basalt and CO<sub>2</sub> with Elastic Waves  
**L. Adam,** K. van Wijk, T. Otheim and M. Batzle. In review.
- Noncontacting bench-top measurements of the elastic properties of shales  
T. E. Blum, **L. Adam** and K. van Wijk.  
In press: *Geophysics*
- Laboratory measurements and elastic models on the velocities of saturated basalts  
**L. Adam** and T. Otheim.  
*Journal of Geophysical Research, Solid Earth*, 2013
- A feasibility study of time-lapse seismic monitoring of CO<sub>2</sub> sequestration in a layered basalt reservoir  
M. Khatiwada, **L. Adam**, M. Morrison and K. van Wijk  
*The Journal of Applied Geophysics*, 2012
- CO<sub>2</sub> sequestration in basalts: fluid substitution and carbonate mineralization  
T. Otheim, **L. Adam**, K. van Wijk, M. Batzle, T. McLing and R. Podgorney.  
*The Leading Edge*, 2011
- Seismic wave attenuation in carbonates  
**L. Adam**, M. Batzle, K. Lewallen and K. van Wijk  
*Journal of Geophysical Research, Solid Earth*, 2009
- Elastic properties of carbonates from laboratory measurements at seismic and ultrasonic frequencies  
**L. Adam** and M. Batzle  
*The Leading Edge*, 2008
- Gassmann's fluid substitution and shear modulus variability in carbonates at laboratory seismic and ultrasonic frequencies  
**L. Adam**, M. Batzle and I. Brevik  
*Geophysics*, 2006

AWARDS AND OTHER  
ACCOMPLISHMENTS

- Invited to speak to Stanford University (In 2013, date to TBD).
- Invited keynote speaker and lecturer for a 1-week course in Rock Physics at the Simón Bolívar University. Caracas, Venezuela. February, 2013.
- Invited speaker at the International Conference on CO<sub>2</sub> injection for EOR and geological sequestration. Hyderabad, India. November, 2012.
- Faculty advisor for BSU team competing at the Department of Energy National Geothermal Student Competition, 2012. The team placed second in the competition.
- Geophysics organizer for National Science Foundation Workshop: Tracking an Energy Elephant, science and engineering challenges for unlocking the geothermal potential of sedimentary basins. November, 2011.
- Session Chairman at the SEG Annual Meeting: 2004, 2010, 2011.
- Faculty advisor for the BSU team that participated at the 2011 AAPG Imperial Barrel Award Competition.
- One of the most cited paper in the *Geophysics* Journal for *Gassmann's fluid substitution and shear modulus variability in carbonates at laboratory seismic and ultrasonic frequencies*
- Convener and presenter for the *EAGE Workshop: Carbonate Rock Physics The Good, the Bad, and the Unknown* Amsterdam, 2009
- Outstanding Student Paper Award at the 2007 AGU Fall Meeting
- Top 30 abstract of all papers presented at the 2007 SEG Annual Meeting
- Invited speaker at the Geophysical Society of Houston, 2006
- SEG scholarship. 2006-2007 and 2007-2008
- Honorable Mention in the Graduate Student Research Fair at Colorado School of Mines. 2006
- Invited speaker to Boise State University, 2005
- Participant at the ExxonMobil field trip to the Ridge Basin, 2005
- CSM Outstanding Women in Geosciences Student Award, from the Association for Women Geoscientists (AWG), 2005
- Honor of Merit for the bachelor thesis
- PDVSA Scholarship during the bachelor degree in geophysical engineering
- Exhibitor for the Universidad Simón Bolívar booth at the SEG Annual Meeting. Houston, 1999

GRADUATE  
STUDENT  
COMMITTEES

- Advisor: Thomas Otheim (Msc in Geophysics, 2012). Co-advisor: Stephen Bai (Msc in Geophysics, on going)
- Committee member: Deborah Fagan (Msc in Geophysics, 2012), Timothy Brown (Msc in Geology, 2012), Andy Lamb (PhD in Geophysics, on going)
- External Reviewer: Osni De Paula (PhD in Geophysics, 2011), Curtin University

- ◇ *Laboratory rock properties for conventional and unconventional reservoirs*  
Adam, L. and van Wijk K. *Advantage NZ Petroleum Conference*, to be presented in May 2013 in Auckland
- ◇ *The Nature of Weak BSRs on the Hikurangi Margin, New Zealand - Patchy Gas in Pores or Gas-filled Fractures?*  
Pecher, I., Bai, S. and Adam, L. *Asian Oceania Geosciences Society Annual Meeting*, to be presented in June 2013
- ◇ *Laboratory measurement of P-wave anisotropy in shales with laser ultrasonics*  
Blum, T. E. , Adam, L., van Wijk, K. and Sondergeld C. *SEG Annual Meeting*, Las Vegas, 2012
- ◇ *Geophysical signatures to monitor fluids and mineralization for CO<sub>2</sub> injection in basalts*  
Otheim T., Adam L., van Wijk K., Batzle M., McLing T. and Podgorney R. *AGU Fall Meeting*, 2011
- ◇ *CO<sub>2</sub> Sequestration in Basalt: Carbonate Mineralization and Fluid Substitution*  
Adam L., Otheim T., van Wijk K., Batzle M., McLing T. and Podgorney R. *SEG Annual Meeting*, San Antonio, 2011
- ◇ *CO<sub>2</sub> sequestration in basalts: laboratory measurements*  
Otheim T., Adam L., van Wijk K., McLing T. and Podgorney R. *AGU Fall Meeting*, 2010
- ◇ *Feasibility of estimating time-lapse Q: a modeling example*  
Adam L., Batzle M. and van Wijk K. *SEG Annual Meeting*, Denver, 2010
- ◇ *A numerical sensitivity analysis to monitor CO<sub>2</sub> sequestration in layered basalt with coda waves*  
Khatiwada M., van Wijk K. and Adam L. *SEG Annual Meeting*, 2009
- ◇ *Effects of Fluids, Frequency and Heterogeneity on Elastic Properties of Carbonate Rocks*  
Sharma R., Adam L. and Prasad M. *SPE Annual Technical Conference*. New Orleans, 2009
- ◇ *Time-lapse attenuation.*  
Adam L. and Batzle M. *Rock this House Workshop*, Galway, 2008
- ◇ *Intrinsic P- and S-wave Attenuation of Carbonate Reservoir Rocks from Seismic, Sonic, to Ultrasonic Frequencies.*  
Chen G., Chu D., Zhang J., Xu S., Payne, M. A., Adam, L., and Soroka, W. L. *SEG Annual Meeting*, Las Vegas, 2008
- ◇ *Laboratory measurements and modeling of seismic attenuation in saturated limestones*  
Adam, L. and Batzle, M. *AGU Fall Meeting*, 2007
- ◇ *Moduli dispersion and attenuation in limestones in the laboratory.*  
Adam, L. and Batzle, M. *SEG Annual Meeting*, San Antonio, 2007
- ◇ *Gassmann's fluid substitution and shear modulus variability in carbonates at laboratory seismic and ultrasonic frequencies*  
Adam L. and Batzle . *Sound of Geology Workshop*, Bergen, 2006
- ◇ *Gassmann's fluid substitution paradox on carbonates: seismic and ultrasonic frequencies*  
Adam, L., Batzle, M. and Brevik, I. *SEG Annual Meeting*, Houston, 2005
- ◇ *Seismic-frequency attenuation and moduli estimates using a fiber-optic strainmeter*  
Adam, L., Scales J. A., Batzle, M. and Niebauer T. *SEG Annual Meeting*, Houston, 2005
- ◇ *Modeling of acoustic properties in carbonate rocks*  
Rossebø, Ø. H., Brevik, I., Ahmadi, G.R. and Adam, L. *SEG Annual Meeting*, Houston, 2005
- ◇ *A fiber-optic strainmeter for attenuation measurements in rocks*  
Adam, L., Scales J. A., Batzle, M. and Niebauer T. *Attenuation: What is to gain from seismic loss? D&P SEG Forum*, 2005
- ◇ *Elastic wave frequencies and rock heterogeneity*  
Adam L. and Batzle M. *Upscaling and Downscaling of Reservoir Parameters. EAGE-SPE Joint Workshop*, 2005

- ◇ *Multilevel 3D VSP travelttime inversion in VTI media, Weyburn Field, Canada*  
L. Adam, K. van Wijk and T. Davis *SEG Annual Meeting*, Dallas, 2003
- ◇ *Seismic imaging and anisotropy analysis of 9C 3D VSP data at Weyburn Field, Canada*  
Bellefleur, G., Adam, L., White, D., Mattocks, B. and Davis, T. *SEG Annual Meeting*, Dallas, 2003
- ◇ *Analysis for well deviation and anisotropic parameter inversion for a 9C 3D VSP, Weyburn Field*  
Adam, L., Mattocks, B. and Davis, T. *EAGE Annual Meeting*, Stavanger, Norway, 2003
- ◇ *Weyburn Field 3D VSP analysis*  
Adam, L. and Davis, T.
- ◇ *3D Seismic Exploration for Sweet Spots in the Denver Basin D-Sandstone Play*  
Davis, T. and Adam, L. *Nafta Magazine*, Oct. 2002, No 10, Croatia *SOVG Meeting*, Caracas, 2002
- ◇ *Isotropic and anisotropic multi-azimuth VSP seismic modeling in the Sierra de Perija, Venezuela*  
Adam, L., Ortega, A., Sierra, J. and Aldana, M. *SEG Annual Meeting*, Calgary, 2000
- ◇ *Designs for multi-azimuthal multi-offset 3D surface seismic and VSP for elastic anisotropy in Perijá (in Spanish)*  
Ortega, A., Sierra, J., Adam, L. and Del Pino, E. *SOVG Meeting*, Caracas, 2000

SERVICE/  
PROFESSIONAL  
AFFILIATIONS

- ◇ Member of the American Geophysical Union - Society of Exploration Geophysicists Collaboration Committee (ASCC), 2013-present
- ◇ Reviewer for Geophysics, Geophysical Prospecting, Geophysical Research Letters, Journal of Applied Geophysics
- ◇ Member of the American Geophysical Union, Society of Exploration Geophysicists, Geoscience Society of New Zealand
- ◇ President of the Society of Geophysics Graduate Students at CSM, 2005-2006
- ◇ Member of the Women in Geophysics Mentoring Program, 2002-2006
- ◇ Treasurer and secretary for the USB Student Chapter of the SEG and AAPG, 1998-2000