

## Xin-Gong Li

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- *30+ years in geophysics, BSc 1984, MSc 1992, PhD 1997*
  - *Developed and applied some advanced technology to support businesses in North America (GOM, Alaska, US onshore), Canada (onshore unconventional), Africa (MPN acreage), Europe (Groningen/induced seismicity, North Viking Graben, Forseti, Grane, Draugen, GRO), South America (BC10, BS4 etc), China (East China Sea, Xijiang, Sichuan, Daqing etc)*
  - *Worked in areas of seismic data processing, quantitative interpretation, inversion, VSP, multi-component/OBC, CSEM, fluid/DHI, rock physics, recent experience in unconventional and microseismic monitoring*
  - *Managed consulting business since 2003 delivering advanced technology to clients*
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### WORK EXPERIENCE

*2006 – present, fulltime Consultant for Shell*

- Development and application of microseismic quantitative interpretation package
  - Integration with conventional seismic QI
  - QC and integrate with third party, sometime multiple, results
  - Support asset teams
    - United States: Eagleford (3 pads), Permian (6+ pads), etc
    - Canada: Groundbirch (2+pads), Foxcreek (1 pad)
    - Europe: Groningen passive monitoring
    - China (2 wells); Argentina (2 wells)
  - R&D of advanced techniques
    - Event statistics vs production
    - Orientation and waveform analyses
    - Moment tensor inversion (MTI)
    - Dynamic rock property changes
    - Event statistics vs. engineer and production data
    - Spectral analysis etc.
- New developments of spectral decomposition, spectral waveform classifier, plugin to Shell internal and Petrel platforms
- Geoscience and user support manager of a quantitative interpretation development team (2010)

- Full software development life cycle, R&D, prototype, design, development, application and support

2004. – *present, Integrated Seismic Solution, Owner*

- Training instructor on geophysical technology; microseismic monitoring
- Consulting/service: Shell International Exploration and Production (SIEP), Apache, CNOOC, CNPC, Kerr McGee, Hydro Gulf of Mexico
- Prospect evaluation with integration of rock physics, basin modeling, seismic AVO, inversion
- Integrated Seismic Package (ISPACK). Development partner with Mathworks/Matlab

2004-2005 – Researcher, University of Houston

- DHI/Fluid consortium
- DOE R&D of advanced techniques to reduce risks of dry holes

1999 – 2003 Dec, *Sr Research Geophysicist, ExxonMobil Upstream Research Company*

1997 - 1999, *Sr Geophysicist, Mobil Technology Company*

- Rock property analysis, AVO and inversion
- Prospect generation and reservoir characterizations for various fields in GOM, North Sea and West Africa
- Multi-component seismic. A latest success is to apply multi-component OBC to image thin reservoir can't be seen on conventional surface seismic data by integrating modeling study and rock property inversion. The results were used to design the horizontal well for field development
- Depth migration and velocity analysis
- QC seismic data processing.

1990 - 1997, *Researcher, UBC, Vancouver, BC, Canada*

- Co-organized and conducted research and for Consortium for the Development of Specialized Seismic Techniques (CDSST).

1984 - 1990, *Processing Support, Project Leader, Sinopec*

- Processed various marine and land data from various regions in China
- Supported Tipex 2D/3D seismic data processing system (Geophysical Service Inc.)
- Led multiple VSP (include multi-component) processing projects.

## EDUCATION

**1997, Ph.D., 1992, M.Sc.,** Geophysics

University of British Columbia, Vancouver, BC, Canada

**1984, B.Sc.,** Geophysics

Tongji University, Shanghai, PRC

## SKILLS

- Structural and quantitative interpretation using geophysical packages: Petrel, Hampson and Russell AVO, Jason Geophysical Workbench, Geoframe, Landmark/Promax, Logsys, etc.
- Experiences in log edit, rock property analysis, well tie, modeling, inversion, seismic data processing and interpretation.
- Research and development
  - Matlab package for consulting work
  - On Shell proprietary integrated system (nDI/Shell)
  - Plugin (nDI and Petrel)
- *Computer Languages*: MATLAB, FORTRAN, C, C++, Java, HTML, Microsoft Excel and Access Database.
- *Computer Systems*: Mac/Unix/Linux/Cygwin, IBM mainframes, MS Windows.

## PROFESSIONAL AFFILIATIONS

Society of Exploration Geophysicists (SEG)

Chinese America Petroleum Association (CAPA)

- President 2009, Chairman of the board of directors, 2011

Houston Geophysical Society (HGS)

## SELECTED PUBLICATIONS

1. Li, X.-G., Jong P L, Sylvester Z, Germs H, Feng C.-C., Dwan F, Jackson A, Griffith D. P., Cook, J., Gesbert S, 2010, Spectral Waveform Classifier – Method and Examples, 80th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts.
2. Li, X.-G., Han, D.-H., Liu, J.-J., and McGuire, D., 2005, Inversion of Sw and porosity from seismic AVO, 75th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts.
3. RAPE, T.D, SHATILO A., LI, X.G, OPPERT, S., LEWALLEN, K., CONEY, D., and ESPEJORD, K., 2005, Forseti – ‘Stealth’ imaging with 4C OBC seismic, EAGE workshop.
4. Li, X.-G., Han, D.-H., and Liu, J.-J., 2004, The effects of reservoir thickness, fluid and Q to seismic amplitudes, 74th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, RC3.

5. Liu, J.-L., Wu, Y., Han, D.-H., and Li, X.-G., 2004, Time and frequency decomposition based on Ricker wavelet, 74th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, SP1.4
6. Li, X.-G., Shatilo, A., Rape, T., Oppert, S., Durren, R., 2003, 4C imaging thin and low P-impedance contrast reservoir at Forseti, ExxonMobil URC report.
7. Li, X.-G., 2002, Applications of PP and PS AVOs in lithology and fluid prediction, ExxonMobil Geophysical Application Symposium.
8. Stewart, J., Li, X.-G., Deffenbaugh, M., and Zhang, M. 2002, PP and PS wave modeling and seismic to well tie with a North Sea Example.
9. Li, X.-G., and Ulrych, T. J., 1999, Well log analysis using localized transforms, J. of Geophy. Explor., 243-260.
10. Li, X.-G., Keys, B., Mack, H., and Xu, S., 1999, Converted wave processing of 4C OBC data: an example, Offshore Technology Conference.
11. Li, X.-G., Wang, B., Pann, K., Anderson, J.A. and Deng, H., 1998, Fast migration using a matching pursuit algorithm, 68th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, 1732-1735.
12. Li, X.-G., 1998, Toolbox for 3D AVO interpretation and visualization, Mobil MEPTEC report.
13. Li, X.-G., 1997, Application of wavelet transforms to seismic data processing and inversion: Ph.D. Thesis, Univ. of BC, Vancouver, BC, Canada.
14. Li, X.-G., and Ulrych, T. J., 1996, Coherent noise filtering using a 2-D Gabor transform: 66th Ann. Internat. Mtg., Soc. Expl. Geophys., 1180-1183.
15. Li, X.-G., and Ulrych, T. J., 1996, Multi-scale attribute analysis and trace decomposition: 66th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, 1634-1637.
16. Li, X.-G., Sacchi, M. D. and Ulrych, T. J., 1996, Wavelet transform inversion with prior scale information: Geophysics, 61, 1379-1385.
17. Li, X.-G., and Ulrych, T. J., 1995, Tomography via wavelet transform constraints: 65th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, 1070-1073.
18. Li, X.-G. and Ulrych, T. J., 1993, Traveltime computation in discrete heterogeneous layered media: J. of Seis. Explo., 2, 305-318.

19. Li, X.-G., 1992, Geometrical formulation and travelttime computation in heterogeneous layered media: M.Sc. thesis, Univ. of British Columbia.
20. Li, X.-G., and Lui, H.-T., 1990, Three component VSP data processing: GBCC project report, in Chinese.
21. Li, X.-G., 1988, An example of VSP data processing and its applications in East China Sea: GBCC 1988 annual technical reports, in Chinese.

#### SELECTED CONSULTING REPORTS AND TALKS

1. Li, X.-G., 2016, Observations of recent seismic technology development, Chinese American Petroleum Association 2016 Technique Symposium
2. Li, X.-G., 2015, Learning from a hundred year old oil field, Chinese American Petroleum Association 2015 Technique Symposium
3. Li, X.-G., Shell Internal Unconventional Resource Conference, 2014, 2015, Development of Microseismic QI Tool
4. Li, X.-G., Jong' P L, Sylvester' Z, Germs' H, Feng' C.-C., Dwan' F, Jackson' A, Griffith' D. P., Cook, J., Gesbert' S, 2010, Applications of Spectral Waveform Classifier, Shell Technology Journal.
5. Fa S. Dwan, Paul Xu, Howard Chan, Xin-Gong Li Phillip Jong, and Tom Holley, 2007, Interactive Fast Spectral Domain (FSD) Analysis while Interpreting, Shell Global Conference, Oman
6. P. van Rensbergen, F. Kets, P. van Toorn, A. van de Meulen, S Devi, F Dwan, S Smith, Xin-Gong Li, A Acuna, G Pike, 2008, Saudi Arabia – South Rub Al-Khali Contract Area 2 Seismic Source Rock Characterization
7. Heidy Correa, Fa Dwan, Susan Smith, Xin-Gong Li, 2008, South Texas Example at 2008 SAVIOR Training
8. Li, X.-G., An integrated case study for detecting low saturation gas, 2006 Fluid/DHI Symposium sponsored by DOE/UH/CSM.
9. Li, X.-G., Detecting low saturation gas using frequency attenuation, 2005 Fluids/DHI Consortium.
10. Li, X.-G. and D.-H., Han, windowed Fourier transform AVO analysis, 2005 Fluids/DHI Consortium.

11. Li, X.-G., Han, D.-H., AVO quality and reservoir property inversion, 2004 Fluids/DHI Annual Meeting.
12. Li, X.-G., Sonic and VSP time bias: implications to Q and frequency dependent velocity, 2004 Fluids/DHI Annual Meeting.
13. Li, X.-G., 2004, Research progress of T-F analysis for reservoir characterization, International DHI Forum Sponsored by Fluids/DHI Consortium
14. Li, X.-G., D. Han, J. Liu, 2004, An new integrated method for predicting reservoir properties with a GOM example, International DHI Forum Sponsored by Fluids/DHI Consortium
15. Matava, T., and Li, X.-G., 2004, Integration of basin modeling with seismic inversion, International DHI Forum Sponsored by Colorado School of Mines and University of Houston

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<sup>i</sup> Updated November 28, 2016