**MEETING SCHEDULE 会议日程**

**Sunday, 4 June 2017**
13:00-18:00......**Onsite Registration**
16:00-16:30......**Session Chair Meeting**

**Monday, 5 June 2017**
07:00-17:00......**Onsite Registration**
08:00-08:10......**Welcome Remarks**

**Session I: Methods and applications of surface microseismic monitoring**
*Chairs: Haijiang Zhang, Leo Eisner*

08:10-08:40......**Keynote (Remote): Realizing the full value of microseismic frac monitoring** *(Peter Duncan, MicroSeismic, Inc)*
08:40-09:10......**Keynote (Remote): The microseismic value chain** *(Stephen Wilson, Seismogenic)*

09:10-09:30......**A holistic performance evaluation for microseismic monitoring arrays** *(Xueping Zhao*, Juan Reyes-Montes, Chunhua Tang)*
09:30-09:50......**A residual static correction method based on orthogonal polynomial fitting for microseismic data** *(Cheng Leilei*, Jiang Yudong, Guo Quanshi)*
09:50-10:20......**Coffee Break and Poster Session 1** *(Posters listed below)*
10:20-10:40......**Joint inversion of source-velocity model for microseismic surface monitoring** *(Xiaozhong Guo*, Chao Feng, Jiangnan Tong)*
10:40-11:00......**Microseismic event detection and location using RMS velocity** *(Wei Zhang*, Xiong Zhang, Jie Zhang)*
11:00-11:20......**Stress inversion for hydraulic fracturing induced seismicity** *(Chuntao Liang, Yangyang Yu, Xuben Wang, Cheng Yin, Furong Wu)*
11:20-11:40......**Full-waveform microseismic source location using improved scattering-integral approach** *(Chao Huang*, Lian-guo Dong, Yu-zhu Liu)*
11:40-12:00......**P- and S-wave separation of microseismic data by wavefield extrapolation method** *(Xiyan Zhou*, Xu Chang, YiBo Wang, Zhenxing Yao)*
12:10-13:30......**Lunch**

**Session II: Recent developments of downhole microseismic monitoring**
*Chairs: Gang Yu, Chuntao Liang*

13:30-14:00......**Keynote: The bedding plane sip model for microseismicity induced in shales** *(Leo Eisner*, Academy of Sciences of the Czech Republic & Seismik)*
14:00-14:20......**Interferometry, stacking, and search engine methods for microseismic monitoring** *(Jie Zhang*, Wei Zhang, Xiong Zhang)*
14:20-14:40......**Imaging fractures beyond conventional microseismic data and methods** *(Albing Li, Hongru Hu, Duo Yuan, Ricardo Zavala-Torres)*
14:40-15:00......**Development of advanced methods for microseismic monitoring of hydraulic fracturing** *(Haijiang Zhang*, Fei Chen, Yukuan Chen, Ye Lin, Yini Chen, Yuyang Tan)*
15:00-15:20......TECHNOLOGY SHOWCASE Microseismic modeling in resource exploration and engineering design (Juhong Li, Paradigm)
15:20-15:50......Coffee Break and Poster Session 2 (Posters listed below)
15:50-16:20......Keynote: Microseismic application in the integration of seismic and geology and engineering (Gang Xu, BGP, CNPC)
16:20-16:40......Microseismic in underground reservoir fracture network evaluation, dialogue between earthquake seismologist and reservoir engineer (Xiaomei Zhang*)
16:40-17:00......The application of microseismic search engine for real-time estimation of source location and focal mechanism (Xiong Zhang*, Jie Zhang, Fangdong Chu, Yanbin Zhang)
17:00-17:20......Multi-component microseismic data denoising by orthogonal matching pursuit (Jie Shao, Yibo Wang, Shaojiang Wu, Qingfeng Xue, Xu Chang)
17:20-17:40......The application of multi-survey MSM in unconventional shale gas in Sichuan, China (Chen Yin)
17:40-18:00......Kalman filter: a potential tool for real-time monitoring velocity changes during hydraulic fracturing (Yukuan Chen*, Haijiang Zhang)

Tuesday, 6 June 2017
08:00-17:00......Onsite Registration
Session III: Understanding microseismicity and induced seismicity
Chairs: Zhigang Peng, Xiating Feng
08:30-09:00......Keynote: Microseismic network performance for induced seismicity monitoring (Junwei Huang*, Devin Garrett, Philip Usher, Shawn Maxwell; Itasca Microseismic and Geomechanical Evaluation)
09:00-09:20......Investigation of the Marsh Creek earthquake sequence using a matched filtering algorithm (Xuewei Bao*, David Eaton)
09:20-09:40......Geomechanical modeling of fault activation and induced seismicity during hydraulic fracturing flowback (Fengshou Zhang*, Shawn Maxwell)
09:40-10:10......Coffee Break and Poster Session 3 (Posters listed below)
10:10-10:40......Keynote (Remote): Managing the earthquake risk associated with oil and gas development (Mark Zoback, Stanford University)
10:40-11:00......Seismicity around the Hutubi underground gas storage, Xinjiang, China (Bo Zhang*, Baoshan Wang, Hongfeng Yang, Zhanbo Ji, Jinxin Hou, Lu Li)
11:00-11:20......Earthquakes induced by hydraulic fracturing in Junlian, Sichuan? (Meng Lingyuan*, Zhou Longquan, Zang Yang, Han Yanyan)
11:20-11:40......Hydraulic fracturing induced seismicity in western Canada: insights from focal mechanism and swarm analysis (Ruijia Wang*, Yu Jeffrey Gu, Miao Zhang)
11:40-12:00......Remote triggering of microseismicity in New Zealand following the Mw7.8 Kaikoura earthquake (Dongdong Yao*, Zhigang Peng, Bill Fry, Laura Wallace, Xiaofeng Meng)
12:10-13:30......Lunch
Session IV: Microseismic studies at laboratory and field scales
Chairs: Yibo Wang, Wei Zhang

13:30-14:00.....Keynote: In-situ microseismicity monitoring to mitigate rockburst risk at deep tunnels (Xiating Feng, Institute of Rock and Soil Mechanics, Chinese Academy of Sciences)

14:00-14:20.....A new time-lapse seismic velocity tomography method based on double-difference seismic tomography and its application to an underground coal mining (Jiawei Qian*, Haijiang Zhang, Erik Westman)

14:20-14:40.....The application of multi-well microseismic monitoring in reservoir stimulation (Rong Jiaojun*, Zhang Yuguang, Li Yanpeng, Xu Gang, Liu Bo, Heng Feng)

14:40-15:00.....Application of microseismic monitoring technology in real-time evaluation of fracturing effect of WeiYuan shale (Xing Tan, Li Ge, Liang Kang, Jian Tang, Fei Liu)

15:00-15:30.....Coffee Break and Poster Session 4 (Posters listed below)

15:30-16:00.....Keynote: Insights gained from laboratory acoustic emission and injection-induced seismicity (Xinglin Lei, Geological Survey of Japan)

16:00-16:20.....Experiment study on focal mechanism inversion of shale hydraulic fracturing: influence of attenuation changes (Hongyu Zhai*, Xu Chang, Yibo Wang, Ziqiu Xue, Xinglin Lei, Yi Zhang)

16:20-16:40.....Real-time earthquake search engine with historic data for database (Huiyu Zhu*, Jie Zhang, Danning Li)

16:40-17:00.....An automatic seismic event identification method by sequentially discounting autoregressive (SDAR) (Luchen Wang*, Ziqiu Xue)

17:00-17:20.....High-resolution microseismic detection and location using Large-N arrays (Zefeng Li, Lijun Zhu, Zhigang Peng, James McClellan)

17:20-17:30.....Best Presentation Awards, Workshop Concludes

Poster Session 1

P01 The acquisition scheme analysis of surface microseismic monitoring based on the forward record (Chaofa Ren*, Haibo Zhao, Baijun Chen, Shengrui Zhang)

P02 Principle of vector scanning for microseismic (Jianli Wang*, Chuanbo Leng, Beiyuan Liang)

P03 Reversal time ray-tracing method for locating microseismic source (Liang Ding, Ergen Gao, Wei Qian, Jing Ba, Chunfang Wu)

P04 A Stratum undulation velocity model optimization algorithm for microseismic monitoring on surface (CHEN Zu-bin, JIANG Hai-yu, Zhu Ya-dong-yang, Lv Hao)

P05 Microseismic events location with variable grid reverse-time focusing (Deshan Zhou*)

P06 Application of surface microseismic monitoring technology in high - steep surface (JiWei Zhu, Hao Li, Liang Kang, Fei Liu)

P07 Joint inversion of source location and velocity based on microseismic reverse time imaging method (Yi Gong*, Zhixian Gui, Peng Wang, Ming Yao)

P08 Feasibility analysis of surface microseismic monitoring technology (Wang Fei*,
Zhang Ye, Xie Qingming)

P09 Comparison of stacking methods with a depth model or with a RMS velocity for automated microseismic event location from surface monitoring (Shangsheng Yan*, Xiong Zhang, Wei Zhang, Jie Zhang)

P10 Surface microseismic monitoring for hydraulic fracturing shale gas reservoir in complex geological structure (XIE Qingming*, LI Dahua, CHENG Lijun, Zhang Ye, Wang Fei, Huang Zhenhua)

P11 PS interferometric correlation imaging condition for seismic source elastic time-reversal imaging (Yicheng Zhou*, Wei Zhang)

P12 Joint inversion of location, excitation time and source energy from microseismic data (Qingfeng Xue*, Yibo Wang, Xu Chang)

P13 An enormous challenge: Understanding the microseismic features (Beiyuan Liang*, Jianli Wang, Chuanbo Leng, Yongchang Su)

Poster Session 2

P01 Cross double-difference inversion method for microseismic location and velocity model update (Xiao Tian*, Wei Zhang, Jie Zhang)

P02 Field scale permeability estimation based on microseismic monitoring (Xin Zhang*)

P03 The application of joint interpretation techniques of seism and microseismic in the M area of the Junggar basin (Shize Wang*, Jinling Du and Gang Xu)

P04 Borehole receiver orientation using attitude heading reference systems and compensation of magnetic disturbances (Chen Zu-bin, Zhu Ya-dong-yang*, Li Na, Jiang Hai-yu, Sun Feng)

P05 Microseismic wavefield and illumination analysis in viscoelastic TTI media based on rotated staggered grid finite-difference method (Zhen-an Yao*, Cheng-yu Sun, Tang Jie)

P06 Synthetic waveform guided microseismic image validation and reprocessing (J. Huang*, S. C. Maxwell)

P07 Location accuracy improvement by using both perforation and microseismic events in sensor orientation (Yuanhang Huo*, Jie Zhang, Wei Zhang)

P08 Uncertainty of microseismic event locations influenced by receiver geometry in downhole monitoring system (Zhichao Yu*, Chuan He, Guiting Hou)

P09 The relative time-delay identification and measurements using phase only correlation method (Shaohiang Wu, Yibo Wang*, Xu Chang)

P10 Automatic microseismic stacking location with a multi-cross-correlation condition (Congcong Yuan*, Wei Zhang, Jie Zhang)

P11 Target-oriented microseismic imaging of hydraulic fractures for downhole monitoring system (Ye Lin, Haijiang Zhang*, Xiaofeng Jia)

P12 Determine layer depth and velocity value for downhole microseismic monitoring by total variation (TV) regularization (Xingda Jiang, Wei Zhang)

P13 Data processing automatically in vector scanning for microseismic (Jianli Wang*, Ming Du, Beiyuan Liang)

P14 The application and understanding of microseismic monitoring technology in
fracture morphology in Daqing low permeable reservoir fracturing production stimulation test (Zhang Hongtao, Gu Mingyong, Zhang hao, Tang Pengfei, Wang Xianjun, Liu yu, Hu Zhifan, Wei Tianchao)

**P15** Microseismic focal mechanism inversion based on wave attributes matching in single downhole monitoring system (Wei Zhao*, Chuan He, Zhichao Yu)

**P16** Semblance for microseismic event location based on a novel grid-searching strategy (Tian-qi JIANG, Su-ping PENG, Jing ZHENG)

**Poster Session 3**

**P01** Microseismic magnitude estimation using the P-wave envelope waveform for EGS (Yuxiang Cheng*, Yanjun Zhang)

**P02** Detailed temporal and spatial distribution of microearthquakes induced by water injection around the Rongchang gas field, Chongqing, China (Zhiwei Wang*, Shengli Ma, Xiaolong Wang, Xing-lin Lei)

**P03** Shear-tensile source focal mechanism and radiation pattern research (Hao Wang*, Jie Tang)

**P04** Dynamic triggering microseismicity in Yunnan following the 2004 Sumatra and 2012 Indian Ocean earthquakes (Lu Li, Baoshan Wang, Zhigang Peng)

**P05** Microseismic observation system demonstration analysis of Jintan salt-cavern gas storage (Lulu Wei, Gang Jing, Fei Wang, Yubo Gu)

**P06** 3D velocity double-difference earthquake relocations in Oklahoma (Chen Chen*, Austin A. Holland, Xiaowei Chen)

**P07** Detecting and locating aftershocks of the 2015 Alxa Zuoqi Ms 5.8 earthquake and implications on the mainshock rupture (Jinxin Hou*, Baoshan Wang, Zhigang Peng)

**P08** A microseismic detection of the injected CO2 stimulation for well C11, Jilin, China (Zhaoxu Sun, Xiaoxia Sun, Jianli Wang)

**Poster Session 4**

**P01** Application of microseismic monitoring technology in fracturing and water injection development of horizontal wells with low permeability and thin layer (Qu Yingxin*, Xiong Wenping*)

**P02** Application of microseismic survey data to analyze the influence of reservoir heterogeneity on hydraulic fracture (Hongzhi Sun, Meiling Zhang, Tianyu Zhang, Chuanlei Dong)

**P03** Data acquisition of vector scanning for microseismic (Jianli Wang*, Shujun Si, Bingping Guo, Yingcai Yang, Beiyuian Liang)

**P04** Teleseismic wave imaging method of irregular topography structure (Xueliang Chen*, Rushan Wu, Mengtian Gao, Zak Kornberg)

**P05** Anisotropic fracture detection based on Q analysis (Liu Ting*, Wen Xiaotao, Cao...
Qizhuang, Li Wenxiu, Li Leihao)

P06 3D crustal P-wave velocity structure in Ludian region *(Xiaona Wang*, Xiangwei Yu, Wenbo Zhang)

P07 Ultra high frequent array and its application in the active tectonics *(Yuntao Ji*, Jin Ma, Liqiang Liu, Peixun Liu, Xiaoxiong Yang, Ji Tang, Shunyun Chen, Bin Wei, Chunyan Song, Lei Feng, Yanhuang Guo, Wenbo Qi, Yangfeng Zhao, Lifeng Wang, Kaiying Wang, Shinian Li, Mingming Han, Mingyang Zhang)

P08 Fiber bragg grating seismometer and applications in earthquake monitoring *(Wentao Zhang*, Wenzhu Huang, Fang Li, Li Li, Wenyi Liu)

P09 Application of 3C geophone in surface structure survey in high-cold area *(Fu zhaokui)

P10 Study on the time-frequency analysis of the microseismic signal based on the generalized S-transform *(YANG Ning)

P11 Attempt and application of microseismic methods in seismological structural modeling *(Yao Qi*, Lu Renqi, Xu Xiwei)


P13 Analysis of the casing deformation in shale gas hydraulic fracturing by seismic and microseismic technology *(Sijin He, Yu Sang, Qian Ying, Siqi He, Tengjiao Liu)

P14 Research on interpolation method of observation system in microseismic monitoring process *(ZHU Chen-yang, ZHENG Jing, JIANG Tian-qi)*