

# Geo-soundings

NEWSLETTER - MARCH 2016



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Welcome to the first edition of Geo-soundings for 2016.

Welcome to the 1<sup>st</sup> edition of Geo-soundings for 2016. We hope you enjoy this issue and look forward to always keeping our readers informed of our activities during 2016 and hope that the remainder of the year is rewarding and productive for all.

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## GRADUATES 2015

### 2015 - Undergraduates

BSc Geophysics / Geophysics Major:

Jason Clark

Vaskar Kadel

Petr Lebedev

Xiuping Liu

Christian Proud

Yoel Staub

Ryan Vitas

BSc Double Degree - Geology/Geophysics:

Kristopher Wright

Benjamin Stimson

### 2015 - Honours

Jarrad Luce (mid-year)

Joshua Meertens

Bryce Teo

Murtaza Yazdari (mid-year)

### 2015 - Postgraduates

MSc Geophysics Major:

Jacob Jackson

Kimoita Innocent Murunga  
Jennifer Neild  
Emenike Okonkwo  
Sutthisrisaarnng Pholpark  
Maneesh Saroya  
Benjamin Seive  
Amalina Syazlin Shamsudin  
Stefan Francis Miguel Spears  
Benjamin Stepin

## **2015 - Higher Degree by Research**

### Master of Philosophy:

Mohammed Alkaff

### Doctor of Philosophy:

Mamdoh Saad A. Alajmi

Olivia Collet

Jamal Ohan I. Esttaifan

Sinem Yavuz

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## **ENROLMENTS 2016**

BSc (Geophysics Major) (across all years)	36
BSc (App Geology / Geophysics)	24
BSc (Science)(Honours) – Geophysics	6
MSc (Geophysics Major)	16
Master of Philosophy	5
Doctor of Philosophy	36

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## **STUDENT COMMITTEE MEMBERS**

### KEGS Office Bearers for 2016:

President:	Dane Padley
Vice President:	Mischa Ritschny
Treasurer:	Zain Kopty
Secretary:	Chanel De Pledge
Post Graduate Representative:	Danny Husado
4th Year Representative:	Christian Proud
3rd Year Representative:	Thomas Dronfield

2nd Year Representative:

Timothy Hill

1st Year Representative:

Blake Melvin

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## JOURNAL PUBLICATIONS 2016

**Vialle, S.**, J. L. Druhan, and K. Maher, 2016, Multi-phase flow simulation of CO<sub>2</sub> leakage through a fractured caprock in response to mitigation strategies: *International Journal of Greenhouse Gas Control*, 11–25, Doi: 10.1016/j.ijggc.2015.10.007.

**Pethick, A.**, and **B. Harris**, 2016, Macro-parallelisation for controlled source electromagnetic applications: *Journal of Applied Geophysics*, **124**, 91–105, Doi: <http://dx.doi.org/10.1016/j.jappgeo.2015.11.013>.

Arif, M., A. Z. Al-Yaseri, A. Barifcani, **M. Lebedev**, and S. Iglauer, 2016, Impact of pressure and temperature on CO<sub>2</sub>-brine-mica contact angles and CO<sub>2</sub>-brine interfacial tension: Implications for carbon geo-sequestration: *Journal of Colloid and Interface Science*, **462**, 208–215, Doi: 10.1016/j.jcis.2015.09.076.

Al-Anssari, S., A. Barifcani, S. Wang, **M. Lebedev**, and S. Iglauer, 2016, Wettability alteration of oil-wet carbonate by silica nanofluid: *Journal of Colloid and Interface Science*, **461**, 435–442, Doi: 10.1016/j.jcis.2015.09.051.

Al-Yaseri, A. Z., **M. Lebedev**, A. Barifcani, and S. Iglauer, 2016, Receding and advancing (CO<sub>2</sub> + brine + quartz) contact angles as a function of pressure, temperature, surface roughness, salt type and salinity: *The Journal of Chemical Thermodynamics*, **93**, 416–423. Doi: 10.1016/j.jct.2015.07.031.

**Glubokovskikh, S.**, **B. Gurevich**, **M. Lebedev**, **V. Mikhailsevitch**, and S. Tan, 2016, Effect of asperities on stress dependency of elastic properties of cracked rocks: *International Journal of Engineering Science*, **98**, 116–125. Doi: 10.1016/j.ijengsci.2015.09.001.

Han, T., **B. Gurevich**, M. Pervukhina, M. B. Clennell, and J. Zhang, 2016, Linking the pressure dependency of elastic and electrical properties of porous rocks by a dual porosity model: *Geophysical Journal International*, **205**, 378–388. Doi: 10.1093/gji/ggw019.

Tecchiato, S., L. Collins, A. Stevens, M. Soldati, and **R. Pevzner**, 2016, Carbonate sediment dynamics and compartmentalisation of a highly modified coast: Geraldton, Western Australia: *Geomorphology*, **254**, 57–72. Doi: 10.1016/j.geomorph.2015.11.014.

Alajmi, M., **A. Bona**, and **R. Pevzner**, 2016, Empirical 3D depth/time dependent coherent noise generation for use in statistical models of seismic data: *Journal of Applied Geophysics*, **125**, 7–13. Doi: 10.1016/j.jappgeo.2015.11.015.

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## HONOURS / GRANTS / AWARDS

Congratulations to **Dr Sinem Yavuz** on being awarded her PhD, which was officially approved on the 4<sup>th</sup> December 2015. Sinem is currently working for the Department of Exploration Geophysics. On behalf of all members of the Department we offer our congratulations to Sinem and her supervisor, Milovan Urosevic, and all panel members on this achievement.

Congratulations to **Dr Jamal Esttaifan** on being awarded his PhD, which was officially approved on the 4<sup>th</sup> December 2015. On behalf of all members of the Department we offer our congratulations to Jamal and his supervisor, Milovan Urosevic, and all panels members on this achievement.

Congratulations to **Dr Pavel Golodoniuc** on being awarded his PhD, which was officially approved on the 4<sup>th</sup> March 2016. Pavel is an employee of CSIRO, Kensington. On behalf of all members of the department we offer our congratulations to Pavel and his supervisor, Boris Gurevich, and all panel members on this achievement.

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## RESEARCH ACTIVITIES

Australian Patent no. 2011274302 "Measurement of slurry density: has been granted to Curtin University on 14<sup>th</sup> January 2016. The inventors are Luiz Alberto Cordeiro (Total Marine Technology), **Maxim Lebedev** and **Boris Gurevich**.

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## STAFF NEWS

*Welcome!*



**Ralf Schaa** has been appointed as a Lecturer and commenced his 2 year appointment with us on the 18<sup>th</sup> of January. Ralf will be working on research projects related to DETCRC and Department of Water/Water Corporation with Brett Harris and others, across disciplines associated with hydrogeophysics, development of methods for mineral exploration and possibly, geological sequestration of CO<sup>2</sup> and other areas of subsurface exploration. Ralf will also participate in some teaching activities.

Ralf has a MSc in Geophysics (2005) from the University of Cologne, Germany; his thesis title was "Abel inversion of radio-bending angles of ESA's Mars Express Mission". He also has a PhD in Geophysics (2010) from the University of Tasmania; his thesis title was "Rapid approximate 3D inversion of transient electromagnetic data". From 2010–2013 he

held a Postdoctoral Research Fellow position at the University of Tasmania and from 2013–2014 he was appointed as a Chief Investigator at the Centre of Geoscience Computing at the University of Queensland. He has over 10 years of experience in computational geophysics and exploration and has published articles in Science, Geophysics and Exploration Geophysics.



**Dr Sepideh (Sepi) Rastin** has been appointed as a Research Fellow and commenced her Curtin Research Contract appointment with us on the 29<sup>th</sup> of January. Sepideh will be working on CO2CRC research projects related to seismic monitoring and characterisation aspects of carbon dioxide geosequestration. This will involve analysis and processing of the time-lapse seismic data acquired using a combination of surface and permanently deployed (buried) geophone arrays, conventional and continuous seismic sources, borehole seismic tools and distributed acoustic sensors. The position is co-funded by CO2CRC. Sepideh will also participate in some teaching activities.

Sepideh has recently been awarded her PhD in Engineering Science (October 2015) from The University of Auckland, New Zealand. Her thesis title was "Improving the performance of earthquake detection in New Zealand with wavelets and ambient noise models". Prior to this, Sepideh was awarded an MSc in Electrical Engineering-Control (2006) from Azad University, Tehran. Her thesis title was "Chaotic time series analysis and simulation". From 2006–2008 Sepideh held a full-time electrical engineer position in Iran; 2008–2010 worked as a part time laboratory tutor at the University of Auckland; and 2012–2013 she held a full time position as a data developer at the International Seismological Centre, UK. She has published 3 journal articles as the lead author in the Bulletin of the Seismological Society of America and 8 conference papers.

*Congratulations!*

**Anton Kepic** has been appointed to the "Boart Longyear Professorial Chair". The appointment is via a limited term contract, commencing on the 1<sup>st</sup> March 2016 through to the 31<sup>st</sup> December 2019 and is in conjunction with the funding support from Boart Longyear. On behalf of all staff and senior students, we offer our congratulations to Anton on this achievement.

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## MEDIA RELEASES

"Tool to revolutionise drilling data." (12<sup>th</sup> January 2016), Kalgoorlie Miner (General News). Associate Professor **Anton Kopic** comments on new drill technology which saves money and time by extracting information during the first drill.

["Game changing" drilling sensors set to tap into a world market.](#) (10<sup>th</sup> January 2016), Science Network Western Australia.

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## VISITORS



**Prof. Serge A Shapiro** from Freie Universitaet Berlin, Germany visited the Department of Exploration Geophysics on the 14<sup>th</sup>–17<sup>th</sup> of March. While he was here he delivered a one day short course titled "Rock Physics and Geomechanics of Fluid-induced Seismicity: hydraulic fracturing, stimulation of geothermal systems and hazard assessment".

Prof. Shapiro is the Director of the PHASE (Physics and Application of Seismic Emission) university consortium project since 2004 and from 2001 to 2008 he was a Coordinator of the German Continental Deep Drilling Program. His research interests include seismogenic processes, wave phenomena, exploration seismology, and rock physics. He received the SEG Virgil Kauffman Gold Medal in 2013 for his work on fluid-induced seismicity and rock physics, and in 2004 was elected a Fellow of The Institute of Physics.

(portions extracted from the [ASEG website flyer](#), "About the lecturer")

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## UPCOMING EVENTS

[GEO2016 12th Middle East Geosciences Conference and Exhibition](#), 7<sup>th</sup>–10<sup>th</sup> March, Bahrain.

[AAPG/SEG International Conference & Exhibition](#), 3<sup>rd</sup>–6<sup>th</sup> April, Barcelona, Spain.

[APPEA Conference and Exhibition 2016](#), 5<sup>th</sup>–8<sup>th</sup> April, Brisbane, Australia.

[EGU General Assembly 2016](#), 17<sup>th</sup>–22<sup>nd</sup> April, Vienna, Austria.

[78th EAGE Conference & Exhibition 2016](#), 30<sup>th</sup>–2<sup>nd</sup> June, Vienna, Austria.

[25th International Geophysical Conference & Exhibition](#), 21<sup>st</sup>–24<sup>th</sup> August, Adelaide, Australia.

[AAPG/SEG International Conference & Exhibition 2016](#), 6<sup>th</sup>–9<sup>th</sup> September, Cancun, Mexico.

[Near Surface Geoscience 2016](#), 4<sup>th</sup>–8<sup>th</sup> September, Barcelona, Spain.

[SEG 2016](#), 25<sup>th</sup>–28<sup>th</sup> September, Cesame, Turkey.

[SEG Annual Meeting](#), 16<sup>th</sup>–21<sup>st</sup> September, Dallas, USA.

[CRGC Annual Meeting](#), 1<sup>st</sup>–2<sup>nd</sup> December, Rottneest Island, Western Australia.

## Educational Software Grants and Programs

A big thank you to all our software vendors who provide us with the continuing support and software resources we need for our teaching and research programs.

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