3rd International Workshop on Induced Polarization

Monday, April 7th, 9:00-11:15

SESSION 1 – IP Petrophysics (chairmen: N. Florsch and J. Macnae) ***Oral presentations***

9:00-9:15	POLARIS: a model to understand and interpret spectral induced polarization data in Earth sciences **Revil A.**
9:15-9:30	Improving understanding of the information content in induced polarization data: the value of empirical observations based on extensive, validated original datasets **Weller A., Slater L.**
9:30-9:45	Resistivity and SIP response of rocks during freezing and thawing **Kemna A., Weigand M., Zimmermann E.**
9:45-10:00	Temperature-dependence of broadband complex electrical conductivity in unconsolidated porous media with variable clay content **Treichel A., Binley A., Kemna A., Esser O., Zimmermann E., Vereecken H., Huisman J.**
10:00-10:15	Experimental and theoretical studies of the temperature dependence of spectral induced polarization (SIP) based on a membrane polarization model **Bairlein K., Hördt A., Bücker M., Nordsiek S.**
10:15-10:30	The salinity dependence of SIP parameters studied with an extended model of membrane polarization **Hördt A., Bücker M.**
10:30-10:45	Spectral induced polarization and hydraulic conductivity measurements on New Zealand unconsolidated sediments **Joseph S., Ingham M., Gouws G.**
10:45-11:00	Induced polarization of carbon materials **Haegel F.-H., Esser O., Zimmermann E., Gao Z., Joblonowski N., Huisman J., Vereecken H.**
11:00-11:15	Laboratory SIP-investigation on unconsolidated mineral-sand-mixtures **Hupfer S., Martin T., Noell U.**

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Monday, April 7th, 14:00-15:45

SESSION 2 – IP Methodology (chairmen: N. Carlson and A. Weller) ***Oral presentations***

14:00-14:15	Factors affecting time domain IP data quality **Dahlin T.**
14:15-14:30	Evaluation of a correction procedure to remove electrode contact impedance effects from broadband SIP measurements **Huisman J., Zimmermann E., Haegel F.-H., Treichel A., Vereecken H.**
14:30-14:45	Numerical modelling of electromagnetic coupling effects in EIT borehole measurements **Zimmermann E., Zhao Y., Huisman J., Treichel A., Wolters B., van Waasen S., Kemna A.**
14:45-15:00	Spectral induced polarization: frequency domain versus time domain **Titov K., Gurin G., Tarasov A., Akulina K.**
15:00-15:15	2D time domain spectral polarization inversion - full wave modelling and Cole-Cole parameterization **Fiandaca G., Doetsch J., Binley A., Christiansen A., Auken E.**
15:15-15:30	Inversion of generalized relaxation time distributions (GRTD) with a L-curve **Florsch N., Revil A., Camerlynck C.**
15:30-15:45	Airborne induced polarization **Macnae J., Kratzer T.**

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Monday, April 7th, 15:45-16:45

SESSION 1 – IP Petrophysics (chairmen: N. Florsch and J. Macnae) ***Poster presentations***

1-1	IP and SIP – the practical link? **Ingham M., Joseph S., Ilse K., Gouws G.**
1-2	Experimental study of the complex electrical conductivity of Fontainebleau sandstones **Kessouri P., Woodruff W., Revil A.**
1-3	Spectral induced polarization monitoring of CO2 injection in saturated sands: laboratory experiment and modelling **Kremer T., Schmutz M., Keating E., Agrinier P., Maineult A.**
1-4	Modelling the induced polarization of bentonite-sand mixtures **Leroy P., Ghorbani A., Revil A., Cosenza P., Okay G.**
1-5	Spectral induced polarization for monitoring electrokinetic remediation processes **Masi M., Losito G.**
1-6	Estimation of the van Genuchten-Mualem parameter α and the saturated hydraulic conductivity from SIP measurements **Nordsiek S., Hördt A., Diamantopoulos E., Durner W.**
1-7	Electrochemical modelling of the SIP response to oxidation of disseminated metallic particles **Placencia-Gómez E., Slater L.**
1-8	Using SIP as a tool for identifying inorganic cations in a variably saturated soil **Shefer I., Weinstein M., Furman A.**
1-9	The effect of free-phase NAPL on the spectral induced polarization signature of variably saturated soil **Shefer I., Schwartz N., Fel L., Furman A.**
1-10	A new numerical pore-scale model of membrane polarization **Undorf S., Kemna A., Bücker M.**
1-11	Fractal dimension and induced polarization? **Zhang Z., Weller A., Nordsiek S.**

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Tuesday, April 8th, 8:30-9:30

KEYNOTE LECTURE

8:30-9:30	Low frequency investigations on wood and trees **Martin T.**

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Tuesday, April 8th, 17:00-18:00

SESSION 2 – IP Methodology (chairmen: N. Carlson and A. Weller) ***Poster presentations***

2-1	The paradox of the measuring electrodes in IP **Abdulsamad F., Florsch N., Schmutz M., Camerlynck C.**
2-2	Imaging spectral electrical properties of variably saturated soil columns **Kelter M., Huisman J., Zimmermann E., Kemna A., Vereecken H.**
2-3	Anisotropic complex conductivity inversion **Kenkel J., Kemna A.**
2-4	Newmont chargeabilities, apparent time constants and finite bandwidths **Macnae J.**
2-5	SIP instruments for laboratory testing: current state of the technology and limitations **Ntarlagiannis D., Slater L., Curatola F., Evdokimov K.**
2-6	Optimizing the acquisition time for time domain spectral IP by measuring during the on-time **Olsson P.-I., Dahlin T., Auken E., Fiandaca G.**
2-7	Test of different metal electrodes for IP measurement in time domain **Postic F., Doussan C.**
2-8	Measuring IP effects at high frequencies: first lab and field data from 0.001 Hz - 250 kHz **Radic T.**
2-9	Cable arrangement to reduce EM coupling effects in spectral induced polarization studies **Schmutz M., Ghorbani A., Vaudelet P., Blondel A.**
2-10	On the application of differential phase parameter in spectral IP **Zorin N.**

3rd International Workshop on Induced Polarization

Wednesday, April 9th, 8:30-10:30

SESSION 3 – IP for geophysical case studies (chairmen: A. Kemna and K. Titov) ***Oral presentations***

8:30-8:45	Synopsis of mapping buried waste with IP effects **Carlson N., Bouzid N.**
8:45-9:00	An overview of time domain induced polarisation for characterisation of underground structures and point source contaminations – large research projects in Denmark and Sweden **Dahlin T., Auken E.**
9:00-9:15	Delineation of a free phase chlorinated hydrocarbon plume with resistivity and TDIP **Johansson S., Olsson P.-I., Lumetzberger M., Dahlin T., Rosqvist H., Sparrenbom C.**
9:15-9:30	Integrating ERT and IP measurements with traditional environmental sampling – ambiguity reduced or increased? A DNAPL case study from Norway **Scheibz J., Bazin S., Pfaffhuber A., Fiandaca G., Dahlin T., Cappelen P., Zadorozhnaya V.**
9:30-9:45	A comprehensive study of the SIP response of soil contaminated with organic pollutants **Schwartz N., Shefer I., Furman A.**
9:45-10:00	Induced polarization imaging at the floodplain scale for the delineation of naturally reduced zones **Flores Orozco A., Bücker M., Williams K.**
10:00-10:15	Monitoring of a CO_2 injection by time domain SIP **Doetsch J., Fiandaca G., Auken E., Christiansen A., Cahill A., Jakobsen R.**
10:15-10:30	Membrane polarization from molecular to rock scale in dynamic regime **Zadorozhnaya V., Abu Zeid N., Santarato G.**

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Wednesday, April 9th, 10:30-11:30

SESSION 3 – IP for geophysical case studies (chairmen: A. Kemna and K. Titov) ***Poster presentations***

3-1	Characterization of a landfill using 2D time domain SIP **Auken E., Fiandaca G., Christiansen A., Gazoty A.**
3-2	Case of study of a hydrocarbon contaminated site using the spectral induced polarization method: contribution of laboratory measurements for the interpretation of field results **Blondel A., Schmutz M., Franceschi M., Carles M., Tichané F.**
3-3	TDIP imaging of watershed over crystalline basement **Camerlynck C., Longuevergne L., Roques C.**
3-4	TDIP and SIP characterization of disseminated ores **Ghorbani A., Schmutz M., Camerlynck C., Parisot J.-C.**
3-5	Optimizing investigation strategies of hydrocarbon contaminated site using multi-geophysical approach in surface and borehole (IP, ERT and GPR) **Giampaolo V., Capozzoli L., Votta M., Rizzo E.**
3-6	Application of the Debye decomposition approach to time domain induced polarization profiling data: an ore exploration example **Gurin G., Tarasov A., Ilyin Y., Titov K.**
3-7	Monitoring of a shallow CO_2 injection using time lapse electrical resistivity and induced polarization methods **Kremer T., Allègre V., Schmutz M., Williard E., Maineult A.**
3-8	Frequency-domain induced polarization: application to a paleovalley, Ugra national park (Russia, Kaluga region) **Kulikov V., Sterligova I.**
3-9	Spectral induced polarization in mineral exploration **Kulikov V., Sterligova I.**
3-10	Monitoring sediments pollution of the Garonne River using induced polarization and magnetic susceptibility measurements **Llubes M., Macouin M., Lartiges B.**
3-11	Interpretation of a clay rock's desaturation process with IP methods **Okay G., Cosenza P., Ghorbani A., Camerlynck C., Cabrera J., Florsch N., Revil A.**
3-12	Spectral induced polarization response of soil organic matter **Schwartz N., Furman A.**
3-13	Spectral induced polarization on roll-front type deposits **Williard E., Maineult A., Béhaegel M.**
3-14	New shape of TEM: membrane polarization, mechanism and possible interpretation **Zadorozhnaya V., Abu Zeid N., Santarato G., Bignardi S.**

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Wednesday, April 9th, 13:30-14:45

SESSION 4 – Other IP applications (chairmen: C. Doussan and T. Martin) ***Oral presentations***

13:30-13:45	SIP responses of building materials, investigation of correlations with specific surface and dominant pore throat size **Kruschwitz S.**
13:45-14:00	Preliminary use of induced polarization measurement to study tree roots growing in earth dikes **Mary B., Saracco G., Peyras L., Mériaux P., Vennetier M.**
14:00-14:15	Imaging and characterization of crop root systems using electrical impedance tomography at the rhizotron scale **Weigand M., Kemna A.**
14:15-14:30	Monitoring of the biodegradation of toluene-contaminated sand in columns by SIP measurements, CO_2 content and its $^{13}C/^{12}C$ isotopic signature **Noel C., Gourry J.-C., Ignatiadis I., Battaglia F., Guimbaud C.**
14:30-14:45	A new model for the spectral induced polarization signature of bacterial growth in porous media **Revil A.**