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S. Szalai, PhD

https://www.researchgate.net/profile/S\_Szalai

Education

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| --- | --- |
| *Sep 1998 – May 2002* | **University of West Hungary, Sopron**PhD, geoelectric researchSopron, Hungary |
| *Sep 1987 – Jun 1993* | **Eötvös Loránd University**MsC, geophysics, environmental studiesBudapest, Hungary |

Research Experience

|  |  |
| --- | --- |
| *Sep 2004 – Aug 2008* | **PI of the OTKA project "Geoelectric null arrays"**Geodetic and Geophysical Institute of the Hungarian Academy of Science, Sopron, Győr-Moson-Sopron, HungaryThe project was evaluated to 8 in the scale 1-10. |
| *Sep 2002 – Aug 2003* | **postdoctoral researcher**University Louis Pasteur, GeophysicalStrasbourg, Alsace, France |
| *Jan 2002 – Jun 2010* | **Lecturer**University of West Hungary, Sopron, Institute of SciencesSopron, Hungary |
| *Oct 1999 – Nov 1999* | **guest researcher**Université de Neuchâtel, Neuchâtel, Switzerland |
| *Sep 1994 – Aug 1995* | **postgraduate student**University Fridericiana, Karlsruhe, Baden-Württemberg, Germanyenvironmental studies, especially waste deposits |
| *Jun 1994 – present* | **participant in several OTKA projects**Hungarian Academy of Sciences, Budapest, Hungary |
| *Sep 1993 – present* | **Head of the Geoelectric Groupe**Hungarian Academy of Sciences, Geodetic and Geophysical InstituteSopron, Győr-Moson-Sopron, Hungary |

Statistics

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| *RG Score* | 23 |
| *Publications*  | 79 |
| *Reads* | 8,556 |
| *Citations* | 365 |

Awards & Grants

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| --- | --- |
| *Nov 2014* | Award: Appreciative by the Bolyai János research Scholarship Board for the outstanding research |
| *Sep 2011* | Scholarship: Bolyai János research Scholarship Board for 3 years |
| *Sep 2011* | Award: Appreciative by the Bolyai János research Scholarship Board for the outstanding research |
| *Sep 2008* | Scholarship: Bolyai János research Scholarship Board for 3 years |
| *Apr 2003* | Award: Best paper of the year (in Hungary) |
| *Sep 2002* | Scholarship: University Loius Pasteur, Strasbourg, France |
| *Oct 2001* | Award: Szádetzky-Kardoss Elemér |
| *Sep 1994* | Scholarship: University Fridericiana, Karlsruhe, Germany |

Skills & Activities

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| --- | --- |
| *Skills* | fractures, Karst, Environmental Geophysics, geoelectric method, pricking probe method, null arrays, g11n arrays, Speleology, Quaternary Geology, Near Surface Geophysics, Resistivity Tomography, Geophysics, Mapping, Topography, Inversion, Hydrogeology, ERT, Measurement, IT Systems, Landslides, Electrics, Tectonics, Geomorphometry, Geomorphological Mapping |
| *Languages* | English, French, German, Hungarian, Russian |
| *Scientific Memberships* | EAGESEGMagyar Geofizikusok Egyesülete |
| *Interests* | psychology, all kind of sports, reading, history, dance, languages |

Publication Highlights

Book Chapters

Mihály Varga, Attila Novák, Sándor Szalai, László Szarka: *Application of Tensorial Electrical Resistivity Mapping to Archaeological Prospection: State of the Art and Case Studies*. Archaeogeophysics, 01/2019: pages 69-81; , ISBN: 978-3-319-78860-9, DOI:10.1007/978-3-319-78861-6\_3

S. Szalai, I. Lemperger, Á. M. Pattantyús, L. Szarka: *The Standardized Pricking Probe Surveying and Its Use in Archaeology: State of the Art and Case Studies*. Archaeogeophysics, 01/2019: pages 205-217; , ISBN: 978-3-319-78860-9, DOI:10.1007/978-3-319-78861-6\_10

Sándor Szalai, Ernő Prácser, Kitti Szokoli, Ádám Tóth: *Prediction of the Process of a Slowly Moving Loess Landslide by Electrical Resistivity Tomography*. Workshop on World Landslide Forum: Advancing Culture of Living with Landslides, 06/2017: pages 131-138; Springer, Cham., DOI:10.1007/978-3-319-53487-9\_14

Journal Publications

Sándor Szalai, Attila Kovács, Lukács Kuslits, Gábor Facskó, Katalin Gribovszki, János Kalmár, László Szarka: *Characterisation of Fractures and Fracture Zones in a Carbonate Aquifer Using Electrical Resistivity Tomography and Pricking Probe Methodes*. 01/2018; 06(04):1-21., DOI:10.4236/gep.2018.64001

Zoltán Gribovszki, Péter Kalicz, Kitti Balog, András Szabó, Tibor Tóth, Péter Csáfordi, Mohamed Metwaly, Sándor Szalai: *Groundwater uptake of different surface cover and its consequences in great Hungarian plain*. 12/2017; 6(1)., DOI:10.1186/s13717-017-0106-4

K. Szokoli, L. Szarka, M. Metwaly, J. Kalmár, E. Prácser, S. Szalai: *Characterisation of a landslide by its fracture system using Electric Resistivity Tomography and Pressure Probe methods*. Acta Geodaetica et Geophysica 04/2017; 53(2)., DOI:10.1007/s40328-017-0199-3

G. G. Barnaföldi, Tomasz Bulik, Marek Cieslar, Ernő Dávid, Mihály Dobróka, Edit Fenyvesi, Zoltán Gráczer, Gergő Hamar, Géza Huba, Árpád Kis, Róbert Kovács, István Lemperger, Péter Lévai, József Molnár, Dávid Nagy, Attila Novák, László Oláh, Péter Pázmándi, Dániel Piri, D. Rosinska, Tomasz Starecki, Mariusz Suchenek, Gergely Surányi, Sandor Szalai, Dezső Varga, Mátyás Vasúth, Peter Ván, Balázs Vásárhelyi, Viktor Wesztergom, Zoltán Wéber: *First report of long-Term measurements of the MGGL Laboratory in the Mátra mountain range*. Classical and Quantum Gravity 10/2016; 34(11)., DOI:10.1088/1361-6382/aa69e3

S. Szalai, K. Szokoli, M. Metwaly, Z. Gribovszki, E. Prácser: *Prediction of the location of future rupture surfaces of a slowly moving loess landslide by electrical resistivity tomography: Location of future rupture surfaces*. Geophysical Prospecting 08/2016;, DOI:10.1111/1365-2478.12421

BARNAFÖLDI G. G., BULIK T., CIESLAR M., DÁVID E., DOBRÓKA M., FENYVESI E., GONDEK-ROSINSKA D., GRÁCZER Z., HAMAR G., HUBA G., KIS Á, KOVÁCS R., LEMPERGER I., LÉVAI P., MOLNÁR J., NAGY D., NOVÁK A., OLÁH L., PÁZMÁNDI P., PIRI D., STARECKI T., SUCHENEK M., SURÁNYI G., SZALAI S., VARGA D., VASÚTH M., VÁN P., VÁSÁRHELYI B., WESZTERGOM V., WÉBER Z.: *A Mátrai Gravitációs és Geofi zikai Laboratórium első mérései és mérési programja*. Magyar Geofizika 01/2016; 57(4):152-169.

Istvan Lemperger, Viktor Wesztergom, Michel Menvielle, Pál Bencze, Judit Szendrői, Attila Novák, Arpad Kis, Ahmed Lethy, Sándor Szalai: *Geomagnetic activity and source effect – results of long term observation*.

S. Szalai, Á. Kis, M. Metwaly, I. Lemperger, K. Szokoli: *Increasing the effectiveness of electrical resistivity tomography using γ11n configurations*. Geophysical Prospecting 12/2014; 63(2)., DOI:10.1111/1365-2478.12215

Sándor Szalai, Kitti Szokoli, Mohamed Metwaly: *Delineation of landslide endangered areas and mapping their fracture systems by the pressure probe method*. Landslides 10/2014; 11(5):923-932., DOI:10.1007/s10346-014-0509-6

Sándor Szalai, István Lemperger, Mohamed Metwaly, Árpád Kis, Viktor Wesztergom, Kitti Szokoli, Attila Novák: *Multiplication of the depth of detectability using γ11n arrays*. Journal of Applied Geophysics 08/2014; 107., DOI:10.1016/j.jappgeo.2014.06.003

S. Szalai, A. Novák, M. Metwaly, B. Neducza, E. Törös, K. Szokoli: *Studying the Fracture System of a Landslide by ERT Method*. 06/2014;, DOI:10.3997/2214-4609.20140938

S. Szalai, K. Szokoli, Á. Tóth, M. Metwaly: *Mapping the Fracture System of a Landslide by Pressure Probe Method*. 06/2014;, DOI:10.3997/2214-4609.20141251

S. Szalai, K. Szokoli, A. Novák, Á. Tóth, M. Metwaly, E. Prácser: *Fracture network characterisation of a landslide by electrical resistivity tomography*. 06/2014; 2(6):3965-4010., DOI:10.5194/nhessd-2-3965-2014

István Lemperger, Menvielle Menvielle, Viktor Wesztergom, Pál Bencze, Judit Szendrői, Attila Novák, Árpád Kis, Sándor Szalai: *Surface electromagnetic impedance and geomagnetic activity: results of long term observation*.

S. Szalai, P. Falco, F. Negro, E. Milnes: *Fracture Detection and Determination Its Orientation Using Different Geoelectric Null-arrays*. 10/2013;, DOI:10.3997/2214-4609.20131678

S. Szalai, K. Szokoli: *New Arrays in the Geoelectric Prospection*. 10/2013;, DOI:10.3997/2214-4609.20131680

S. Szalai, A. Novák, K. Szokoli: *Seeing Deeper by ERT Measurements*. 10/2013;, DOI:10.3997/2214-4609.20131679

S. Szalai, K. Szokoli: *Better than the Optimised Traditional ERT Array - The g11n Arrays*. 09/2013;, DOI:10.3997/2214-4609.20131432

S. Szalai, P. Falco, F. Negro, E. Milnes: *Localising Fractures by Geoelectric Null-arrays*. 09/2013;, DOI:10.3997/2214-4609.20131331

K. Szokoli, S. Szalai, A. Novák: *Increasing the Depth of Detectability of ERT Measurements*. 09/2013;, DOI:10.3997/2214-4609.20131363

Pierik Falco, François Negro, Sándor Szalai, Ellen Milnes: *Fracture characterisation using geoelectric null-arrays*. Journal of Applied Geophysics 06/2013; 93:33-42., DOI:10.1016/j.jappgeo.2013.03.005

S. Szalai, A. Koppán, K. Szokoli, L. Szarka: *Geoelectric imaging properties of traditional arrays and of the optimized Stummer configuration*. Near Surface Geophysics 02/2013; 11(1):51-62., DOI:10.3997/1873-0604.2012058

Sándor Szalai, Attila Novák, László Szarka: *Which geoelectric array sees the deepest in a noisy environment? Depth of detectability values of multielectrode systems for various two-dimensional models*. Physics and Chemistry of the Earth Parts A/B/C 12/2011; 36(16)., DOI:10.1016/j.pce.2011.01.008

S. Szalai, M. Varga, A. Novak, L. Szarka: *Non-conventional geoelectric arrays — Practical results of the OTKA project K49604*. Acta Geodaetica et Geophysica Hungarica 12/2011; 46(4):379-390., DOI:10.1556/AGeod.46.2011.4.1

S. Szalai, A. Novák, M. Varga, L. Szarka: *Practical Results of a Research Project*. DOI:10.3997/2214-4609.20144461

S. Szalai, L. Szarka: *Incorporating Once-developed Geoelectric Arrays into Two-dimensional Multi-electrode Measurements*. DOI:10.3997/2214-4609.20144475

Sándor Szalai, László Szarka: *Expanding the possibilities of two-dimensional multielectrode systems, with consideration to earlier geoelectric arrays*. Journal of Applied Geophysics 09/2011; 75(1):1-8., DOI:10.1016/j.jappgeo.2011.06.020

S. Szalai, I. Lemperger, M. Pattantyús-Ábrahám, L. Szarka: *The standardized pricking probe surveying and its use in Archaeology*. Journal of Archaeological Science 01/2011; 38(1-38):175-182., DOI:10.1016/j.jas.2010.09.002

S. Szalai, I. Kósa, T. Nagy, L. Szarka: *Geoelectric analogue modelling experiments to detect fissure directions in multidirectional fissure systems*. Acta Geodaetica et Geophysica Hungarica 06/2010; 45(2):137-147., DOI:10.1556/AGeod.45.2010.2.1

S. Szalai, M. Varga, A. Novák, L. Szarka: *Non-conventional geoelectric arrays — Results of the OTKA project K49604*. Acta Geodaetica et Geophysica Hungarica 12/2009; 44(4):369-384., DOI:10.1556/AGeod.44.2009.4.1

S. Szalai, M. Varga, A. Novák, L. Szarka: *Non-conventional Geoelectric Arrays – Results of a Research Project – Theory*. DOI:10.3997/2214-4609.20149403

S. Szalai, I. Kósa, T. Nagy, L. Szarka: *Effectivity Enhancement of Azimuthal Geoelectric Measurements*. DOI:10.3997/2214-4609.20147095

S. Szalai, L. Szarka: *Geoelectric arrays*. Current science 05/2009; 96(10).

A. Adam, P. Bencze, J. Bor, B. Heilig, A. Koppan, K. Kovacs, F. Märcz, D. Martini, A. Novak, G. Satori, S. Szalai, L. Szarka, J. Verö, V. Wesztergom, B. Zieger: *GEOELECTROMAGNETISM AND THE CHANGING EARTH*. Acta Geodaetica et Geophysica Hungarica 03/2009; 44(3):1-42., DOI:10.1556/AGeod.44.2009.3

József Verő, Antal Ádám, Pál Bencze, József Bór, Balázs Heilig, András Koppán, Károly Kovács, Tamás Lipovics, Ferenc Märcz, Imre Müller, Gabriella Sátori, Sándor Szalai, László Csaba SZARKA, Viktor Wesztergom, Bertalan Zieger: *Geoelektromágnesség és a változó Föld = Geoelectromagnetism and the changing Earth*. Acta Geodaetica et Geophysica Hungarica 03/2009; 44:271.

Sandor Szalai, Attila Novak, Laszlo Szarka: *Depth of Investigation and Vertical Resolution of Surface Geoelectric Arrays*. Journal of Environmental & Engineering Geophysics 03/2009; 14(1):15-23., DOI:10.2113/JEEG14.1.15

S. Szalai, L. Szarka: *Parameter sensitivity maps of surface geoelectric arrays I. Linear arrays*. Acta Geodaetica et Geophysica Hungarica 12/2008; 43(4):419-437., DOI:10.1556/AGeod.43.2008.4.4

S. Szalai, L. Szarka: *Parameter sensitivity maps of surface geoelectric arrays II. Nonlinear and focussed arrays*. Acta Geodaetica et Geophysica Hungarica 12/2008; 43(4):439-447., DOI:10.1556/AGeod.43.2008.4.5

Metwaly M, El-Qady G, Matsushima J, Szalai S, N. S. N. Al-Arifi, Taha A: *Contribution of 3-D electrical resistivity tomography for landmines detection*. Nonlinear Processes in Geophysics 11/2008; 15(6)., DOI:10.5194/npg-15-977-2008

S. Szalai, A. Koppán, L. Szarka: *Effect of Positional Inaccuracies on Multielectrode Results*. Acta Geodaetica et Geophysica Hungarica 03/2008; 43(1):33-42., DOI:10.1556/AGeod.43.2008.1.3

Sándor Szalai, László Szarka: *On the classification of surface geoelectric arrays*. Geophysical Prospecting 01/2008; 56(2):159 - 175., DOI:10.1111/j.1365-2478.2007.00673.x

S. Szalai, M. Veress, A. Novak, L. Szarka: *Bedrock topography in a buried karstic area by applying multielectrode measurements completed with*.

S. Szalai, A. Novák, L. Szarka: *Depth of Investigation of Dipole-dipole, Noncolinear and Focused Geoelectric Arrays*. DOI:10.3997/2214-4609.20146644

Attila Novák, Sándor Szalai, László Szarka: *Target Detectability Depths of DC Arrays for Various Models*. DOI:10.3997/2214-4609.201402686

J. Vero, A. Ádám, P. Bencze, J. Bór, A. Koppán, K. Kovács, I. Lemperger, D. Martini, F. Märcz, A. Novák, T. Prodán, G. Sátori, S. Szalai, L. Szarka, V. Wesztergom, B. Zieger: *Geo-electromagnetism*.

Sándor Szalai, Guy Marquis: *Colinear null arrays in geoelectrics*.

S. Szalai, L. Szarka, G. Marquis, P. Sailhac: *D.c. geometrical null arrays*.

S Szalai, L Szarka, E Pracser: *Geoelectric mapping of near-surface karstic fractures by using null arrays (vol 67, pg 1769, 2002)*. Geophysics 03/2003; 68(2):760-760., DOI:10.1190/1.1567528038302GPY

S. Szalai, L. Szarka, E. Prácser, F. Bosch, I. Müller, P. Turberg: *To ``Geoelectric mapping of near-surface karstic fractures by using null arrays'' (S. Szalai, L. Szarka, E. Pr´acser, F. Bosch, I. M̈uller, and P. Turberg, GEOPHYSICS, 67, 1769 1778).*. Geophysics 03/2003; 68(2):760-., DOI:10.1190/1.1567528

P. Sailhac, G. Marquis, M. Darnet, S. Szalai: *On the characterization of subsurface flow and hydraulic conductivity from surface SP measurements: correcting for electrical heterogeneities*.

Sándor Szalai, László Szarka, E. PröCser, Frank Bosch, I. MöLler, Pascal Turberg: *Geoelectric mapping of near-surface karstic fractures by using null arrays*. Geophysics 11/2002; 67(6)., DOI:10.1190/1.1527077

Sándor Szalai, László Szarka: *An approximate analytical approach to compute geoelectric dipole–dipole responses due to a small buried cube*. Geophysical Prospecting 12/2001; 48(5):871 - 885., DOI:10.1046/j.1365-2478.2000.00222.x

S. Szalai, M. Abd Alla, S. Ahmed: *Localisation and direction determination of fissures with geoelectric methods in narrow, elongated measuring areas*. Acta Geodaetica et Geophysica Hungarica 10/2001; 36(3):285-296., DOI:10.1556/AGeod.36.2001.3.5

S. Szalai: *About the depth of investigation of different D.C. dipole-dipole arrays*.

Sándor Szalai, Attila Novák, László Csaba SZARKA, Mihály Varga: *Nem-konvencionális geoelektromos elrendezések = Non-conventional geolectrical arrays*.

László Csaba SZARKA, Antal Ádám, Márta Kis, András Madarasi, Zoltán Nagy, Ernő Prácser, László Sőrés, Sándor Szalai, Géza Varga, József Verő, Viktor Wesztergom: *Új irányzatok a magnetotellurikában = New tendencies in magnetotellurics*.

Patents

Conference Proceedings

Sándor Szalai, Viktor Wesztergom, Kitti Szokoli: *Delineation of Endangered Areas in a Slowly Moving Landslide by the Pressure Probe Method*. Workshop on World Landslide Forum; 06/2017, DOI:10.1007/978-3-319-53498-5\_82

S. Szalai, A. Novák, K. Szokoli, E. Nadasi: *New ERT Arrays to Increase the Depth of Detectability*. Near Surface Geoscience 2016 - 22nd European Meeting of Environmental and Engineering Geophysics; 09/2016, DOI:10.3997/2214-4609.201602000

S. Szalai, V. Wesztergom, K. Szokoli, A. Frigy, E. Prácser: *Field Applicability of the g11n Configuration*. 8th Congress of the Balkan Geophysical Society; 10/2015, DOI:10.3997/2214-4609.201414151

S. Szalai, M. Metwaly, K. Szokoli, Á. Tóth, V. Wesztergom: *Fracture System Mapping Using Pressure Probe Method*. 8th Congress of the Balkan Geophysical Society, Chania, Greece; 10/2015, DOI:10.3997/2214-4609.201414129

S. Szalai, K. Szokoli, E. Prácser, A. Frigy, V. Wesztergom: *The First Inversion Results with the g11n Configuration*. 77th EAGE Conference and Exhibition 2015; 06/2015, DOI:10.3997/2214-4609.201412816

S. Szalai, A. Novák, M. Varga, A. Frigy, M. Metwaly, K. Szokoli, L. Szarka: *Dimensional Tensor Invariants in Geoelectric Prospecting*. 77th EAGE Conference and Exhibition 2015; 06/2015, DOI:10.3997/2214-4609.201412817

S. Szalai, I. Lemperger, M. Pattantyús-Á, L. Szarka: *Pricking Probe as a Complementary Technique in Archeological Prospecting*. Near Surface 2009 - 15th EAGE European Meeting of Environmental and Engineering Geophysics; 09/2009, DOI:10.3997/2214-4609.20146990

S. Szalai, M. Veress, A. Novák, L. Szarka: *Application of the Simplest Geophysical Method, the Pricking Probe Method to Map Bedrock Topography in a Karstic Area*. Near Surface 2008 - 14th EAGE European Meeting of Environmental and Engineering Geophysics; 09/2008, DOI:10.3997/2214-4609.20146303

S. Szalai, L. Szarka: *Auxiliary Results of Collection and Classification of Surface Geoelectric Arrays*. Near Surface 2007 - 13th EAGE European Meeting of Environmental and Engineering Geophysics; 09/2007, DOI:10.3997/2214-4609.20146552

S. Szalai, Szarka, Révi, Varga: *GEOELECTRIC INVESTIGATION OF A PLURIDIRECTIONAL FISSURE SYSTEM IN A KARSTIC AREA Szalai*. 2nd ICEEG 2006; 09/2006

Sándor Szalai, László Szarka: *PARAMETER SENSITIVITY MAPS OF SURFACE GEOELECTRIC ARRAYS*. 2nd ICEEG 2006; 09/2006

Attila Novák, László Hungary, Szarka, Mihály Varga, Szalai, Zsófi Hungary, Pap, Andrea Károlyi: *Tensor-invariant based electrical potential mapping, and its use in an archeological field study*. IAGA WG 1.2 on Electromagnetic Induction in the Earth; 10/2004

Sándor Szalai, Geophysical Geodetic, Guy Marquis: *Colinear null arrays in geoelectrics*. IAGA WG 1.2 on Electromagnetic Induction in the Earth Available at Proceedings of the 17th Workshop 2004; 10/2004

S. Szalai, F. Bosch, P. Turberg, I. Müller, E. Prácser, L. Szarka: *Field meauserements by using geoelectrical nullarrays on fissured limestone in the Swiss Jura*. 5th EEGS-ES Meeting; 09/1999, DOI:10.3997/2214-4609.201406409

L. Szarka, Z. Nagy, S. Szalai: *3D Csamt analogue modelling studies*. 56th EAEG Meeting; 06/1994, DOI:10.3997/2214-4609.201410071

Technical Reports

S. Szalai: *Collection and classification of all ever used geoelectric configurations.*. DOI:10.13140/2.1.1510.2242

S. Szalai: *Mini poster (size A3) to have an overlook about the ever used geoelectric configurations*. Affiliation: MTA CSFK GGI, DOI:10.13140/2.1.1772.3683