

## Sándor Kele, PhD

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## Education

- 2003 to 2009** **PhD.** Eötvös Loránd University, Budapest.  
PhD thesis: "Investigations on freshwater limestones from the Carpathian-Basin: paleoclimatological and sedimentological studies" Supervision: Dr. Csaba Szabó (ELTE), Consultant: Dr. Attila Demény (HAS)
- 2002** **University of Florence, Italy**  
ERASMUS exchange (5 months)
- 1997 to 2003** **MSc** in Geology, Eötvös Loránd University, Budapest  
Dissertation topic: Stable isotope investigations on the Budakalász freshwater limestone.  
Supervisor: Dr. Csaba Szabó (ELTE), Orlando Vaselli (University of Florence, Italy)

## Professional Background

- Since 2014** **Institute for Geological and Geochemical Research, HAS, Budapest, Hungary**  
Senior research fellow
- 2013-2014:** **ETH Zürich, Zürich, Switzerland**  
SCIEX postdoctoral fellow
- 2005-2013:** **Institute for Geochemical Research, HAS, Budapest, Hungary**  
Junior research fellow (2003-2007), research fellow (2007-2011), senior research fellow (2011-)
- 2004-2005:** **SCK-CEN (Belgian Nuclear Research Centre), Mol, Belgium**  
Trainee with the support of the Hungarian Scholarship Board
- 2003-2004:** **Laboratory for Geochemical Research, Hungarian Academy of Sciences (HAS), Budapest, Hungary** - Junior research fellow (PhD student)
- 2002** **University of Florence, Firenze, Italy**  
ERASMUS scholarship, student

## Research interest

**Stable- and clumped isotope** geochemistry of carbonates  
Study of recent **travertine** depositing **hot spring** systems, calcite-water and aragonite-water oxygen isotope fractionation and calibration issues  
**Paleoclimatology** (based on travertines, tufas and speleothems)  
Geochemistry of dolomites, soil carbonates, tree rings, ...

## Awards and grants

- 2013-2016** **Bolyai János Research Scholarship** of the Hungarian Academy of Sciences  
**2013-2014** **SCIEX postdoctoral fellowship** (ClumpIT, ScieX-Nr:13.071-2, **ETH Zürich**, Switzerland)  
**2012** **Szádeczky-Kardoss Elemér Award**  
**2010** Central European Geology, **Best Paper Award for Young Researchers**

- 2009 Hungarian Academy of Sciences, **Young Scientist Award**
- 2008 Scholarship of the Hungarian Academy of Sciences, (National Taiwan University, Taipei, Taiwan, 6 weeks)
- 2005 European Society for Isotope Research (ESIR) VIII. Workshop: **Poster Prize for Young Scientists**
- 2004-2005 Scholarship of the **Hungarian Scholarship Board** (10 months, SCK-CEN, Belgian Nuclear Research Centre, MOL, Belgium)
- 2004 XXXIV. Meeting of Young Geologists, **3rd** place
- 2002/2003 Grant of the **Pro Renovanda Culturae Hungariae** Foundation
- 2002/2003 **Distinguished Student** of the Faculty of Natural Sciences, ELTE, Budapest, Hungary
- 2003 **National Scientific Conference** of Students, Miskolc, Hungary:  
Sedimentology section: **1st** place  
Paleontology section: **1st** place
- 2002 Scientific Conference of Students, Eötvös Loránd University, Budapest, Hungary: **2nd** place
- 2002 **Erasmus** scholarship (5 months, University of Florence, Italy)
- 2001 4th Hungarian Paleontological Regional Meeting: **3rd** place in the poster session

## Invited talks

- 2015 Invited seminar talk, Karl-Franzens-University of Graz, Austria, 15 December 2015
- 2015 Invited seminar talk, University of Lausanne, Switzerland, 25 November, 2015
- 2015 Keynote lecture, Travertine-Tufa Workshop, Pamukkale University, Denizli, Turkey, 5-8 November, 2015
- 2015 Plenary lecture, MSCC 2015, 6<sup>th</sup> Mineral Sciences in the Carpathians Conference, Veszprém, Hungary 16-19 May, 2015
- 2015 Invited lectures, Methods and Interpretations in Palaeoclimate Research course, Doctoral School of Earth Sciences and Ecology and Department of Geology of University of Tartu, Estonia, April 20 - 23, 2015
- 2014 Invited talk, 5. Közéleti és Geokémiai Vándorgyűlés, Révfülöp, Hungary, 4-6 September 2014
- 2014 Invited seminar talk, Roma Tre University, Roma, Italy, 30 June, 2014
- 2013 Invited talk, 8. Téli Ásványtudományi Iskola, Balatonfüred, Hungary, 18 January, 2013
- 2013 Invited seminar talk, ETH Zürich, Switzerland (12.03.2013)
- 2012 Invited talk, V. Geochemistry Symposium, Pamukkale University, Denizli, Turkey, 23-25 May, 2012
- 2011 Invited lecture, International School of Travertine and Tufa (ISTT) sponsored by IAS, September 5-9, 2011, Abbazia San Salvatore, Italy.

## Referee service

- Journals: Nature Scientific Reports, Geochimica et Cosmochimica Acta, Chemical Geology, Sedimentology, Sedimentary Geology, Quaternary International, International Journal of Earth Sciences, Central European Geology, Earth Sciences Research Journal, Central European Journal of Geosciences, Bulletin of the Hungarian Geological Society,...
- Proposals: Hungarian National Science Fund

## Research projects

Travertine Reservoir Analogue Studies (TraRAS ), (2014-2017). Project leader: Rudy Swennen, KU Leuven, Belgium; Hungarian coordinator: Sándor Kele)

NK OTKA (101664) (Hungarian National Science Foundation) (2012-2016) Complex geochemical, paleoclimatological and tectonic investigations on continental carbonate deposits in Hungary (participate researcher, Project leader: Demény Attila)

OTKA 81296 (Hungarian National Science Foundation) (2010-2015) Comparative study of the Upper Permian and Triassic dolomites of the Transdanubian Range and interpretation of their origin (Project leader: Haas János)

TR-10/2006 (2007-2009) Stable isotopic studies on travertines for paleoenvironmental and paleoclimatic reconstruction: A comparative study on the genesis of occurrences in Turkey and Hungary. Supported by The Scientific and Technological Research Council of Turkey – TÜBİTAK and Hungarian Academy for Science-NTSC. Coordinators: Mehmet Özkul (Pamukkale University) and Kele Sándor (Hungarian Academy for Sciences)

OTKA K67583 (2007-2012) Environmental history – annual resolution proxies (Project leader: Kázmér Miklós)

## Ongoing international collaborations

Prof. Dr. Stefano Bernasconi (ETH Zürich, Switzerland)  
Prof. Dr. Rudy Swennen (KU Leuven, Belgium)  
Prof. Dr. Chuan-Chou Shen (National Taiwan University, Taipei, Taiwan)  
Dr. Tobias Kluge (Institute of Environmental Physics, Heidelberg University, Germany)  
Dr. Enrico Capezzuoli (University of Perugia, Italy)  
Prof. Dr. Julian Andrews (University of East Anglia, Norwich, UK)  
Prof. Dr. Mehmet Özkul (Pamukkale University, Denizli, Turkey)  
Dr. Andrea Billi (Consiglio Nazionale delle Ricerche, CNR, Rome, Italy)  
Dr. Gianluca Vignaroli, Gabriele Berardi (Roma Tre University, Rome, Italy)  
Dr. Giovanna della Porta (University of Milan, Milan, Italy)  
Dr. Christos Kanellopoulos (Institute of Geology and Mineral Exploration (IGME), Athens, Greece)

## Organization of Scientific Meetings

- 2015** Member of the Scientific Committee, Travertine-Tufa Workshop, Pamukkale University, Denizli, Turkey, 5-8 November, 2015
- 2015** Main organizer of the annual TraRas (Travertine Reservoir Analogue Studies) project meeting, Budapest, 8-10 July, 2015
- 2014** Organizing committee for the 4th International Clumped Isotope Workshop, ETH Zürich (Aug 2014)
- 2013** Organizing committee of the AIG10 10th Applied Isotope Geochemistry Conference, Budapest, Hungary, 22-27 September 2013.
- 2012** Member of the Scientific Committee, 5th Geochemistry Symposium, Denizli, Turkey (23-35 May 2012)
- 2011** Secretary of the organizing committee of the ESIR (European Society for Isotope Research), XI. Workshop, Budapest, Hungary, 4-8 July, 2011
- 2011** Member of the Scientific Committee, ISTT, International School of Travertine and Tufa (5-9 September, 2011)
- 2004** Organization of the Climatic and tectonic controls on travertine formation: the case of the Pannonian Basin, 4-9 July 2004, Tata and Egerszalók, Hungary
- 2003** Organization of the ECROFI XVII. (European Current Research On Fluid Inclusions) 5-7 June, 2003, Budapest, Hungary.

## Community and Professional Involvement

- 2015** Convener of session, Travertine-Tufa Workshop, Pamukkale University, Denizli, Turkey, 5-8 November, 2015
- 2015** Convener of session, ESIR Isotope Workshop XIII, Zadar, Croatia, 20-24 September 2015
- 2013-2015** Member of the ESIR (European Society for Isotope Research) Advisory Board

<b>2014</b>	Convener of session, 4th International Clumped Isotope Workshop, ETH Zürich, Switzerland (24-27 August 2014)
<b>2013</b>	Convener of session, AIG10 10th Applied Isotope Geochemistry Conference, Budapest, Hungary, 22-27 September 2013.
<b>2012</b>	Convener of session, 5th Geochemistry Symposium, Denizli, Turkey (23-35 May 2012)
<b>2011</b>	Convener of session, ESIR Isotope Workshop X., Budapest, Hungary, 4-8 July, 2011
<b>2011</b>	Member of the Revision Committee of the European Society for Isotope Research (ESIR)
<b>2010 – 2011</b>	Secretary of the European Society for Isotope Research (ESIR)
<b>2007 – 2010</b>	Member of the Revision Committee of the European Society for Isotope Research (ESIR)

## Teaching experience

*Sedimentology and geochemistry of travertines*, special course (2 credit) at Eötvös Loránd University, Budapest and at University of Szeged, Szeged, Hungary (2010-)

## Supervision

<i>PhD</i>	<p>Ágnes Török (ELTE, Budapest és KU Leuven, Belgium) (2014-)</p> <p>Dóra Kürthy (ELTE, geologist) (2014-)</p> <p>Gabriele Berardi (Roma Tre University, Rome, Italy) (2013-)</p> <p>Gabriella Koltai (University of Szeged, Department of Climatology and Landscape Ecology, (2011-2013)</p>
<i>MSc</i>	<p>Bódai Barbara (ELTE, geographer) (2014-)</p> <p>Ágnes Török (ELTE, Budapest és KU Leuven, Belgium) (2014)</p> <p>Mónika Varga (ELTE, geologist) (2012)</p> <p>Mathieu Degros (KU Leuven, Belgium) (2012-2013)</p> <p>Tuur Smekens (KU Leuven, Belgium) (2012-2013)</p> <p>János Borsody (ELTE, geologist) (2012)</p>
<i>BSc</i>	<p>Zsófia Kőszegi (ELTE, meteorologist) (2015)</p> <p>Barbara Bódai (ELTE, geographer) (2014)</p> <p>Ágnes Török (ELTE, geologist) (2011)</p>

### *National Scientific Competition of Students*

Barbara Bódai (ELTE, geographer) (2015) (National Scientific Conference of Students, **1st place**)

Barbara Bódai (ELTE, geographer) (2012)

Ágnes Török és Viktória Ünnep (ELTE, geologist) (2011) (**3rd place and Special Prize**, XXX. National Scientific Conference of Students, 27-29 April 2011)

Ágnes Török és Viktória Ünnep (ELTE, geologist) (2010) (**3rd place and audience award**, ELTE, TTK Scientific Conference of Students)

## Memberships

<b>since 2014</b>	International Association of Sedimentologists (IAS)
<b>since 2011</b>	European Association of Geochemistry (EAG)
<b>since 2011</b>	Hungarian Academy of Sciences, member
<b>since 2010</b>	Hungarian Hydrological Society
<b>since 2008</b>	European Geosciences Union (EGU)
<b>since 2005</b>	Society for Sedimentary Geology
<b>since 2004</b>	European Society for Isotope Research (ESIR)
<b>since 1997</b>	Hungarian Geological Society

## Selected publications

- Kele, S., Breitenbach, S.F.M., Capezzuoli, E., Meckler, A.N., Ziegler, M., Millan, I.M., Kluge T., Deák, J., Hanselmann, K., John, C.M., Yan, H., Liu, Z., Bernasconi, S.M. (2015) Temperature dependence of oxygen- and clumped isotope fractionation in carbonates: A study of travertines and tufas in the 6-95°C temperature range. **Geochimica et Cosmochimica Acta**, 168, 172-192.
- Soete, J., Kleipool, L.M., Claes, H., Claes, S., Hamaekers, H., Kele, S., Özkul, M., Foubert, A., Reijmer, J.J.G., Swennen, R. (2015) Acoustic properties in travertines and their relation to porosity and pore types. **Marine and Petroleum Geology**, 59, 320-335.
- Toker, E., Kayseri-Özeri, M.S., Özkul, M., Kele, S. (2015) Depositional system and palaeoclimatic interpretations of Middle-Late Pleistocene travertines: Kocabas, Denizli, Sw-Turkey. **Sedimentology**, 62 (5), 1360-1383.
- Hips, K., Haas, J., Poros, Zs., Kele, S., Budai, T. (2015) Dolomitization of triassic microbial mat deposits (Hungary): origin of microcrystalline dolomite. **Sedimentary Geology**, 318, 113-129.
- Çolak Erol, S., Özkul, M., Aksoy, E., Kele, S., Ghaleb, B. (2015) Travertine occurrences along major strike-slip fault zones: Structural, depositional and geochemical constraints from the Eastern Anatolian fault System (EAFS), Turkey. **Geodinamica Acta**, 27, 155-174.
- Laumets, L., Kalm, V., Poska, A., Kele, S., Lasberg, K., Amon, L. (2014): Palaeoclimate inferred from  $\delta^{18}\text{O}$  and palaeobotanical indicators in freshwater tufa of Lake Äntu Sinijärv, Estonia. **Journal of Paleolimnol.**, 51, 99-111.
- Haas, J., Budai, T., Györi, O., Kele, S. (2014): Similarities and differences in the dolomitization history of two coeval Middle Triassic carbonate platforms, Balaton Highland, Hungary. **Facies**, 60 (2), 581-602.
- Haas, J., Budai, T., Györi, O., Kele, S. (2014): Multiphase partial and selective dolomitisation of Carnian reef limestone (Transdanubian Range, Hungary). **Sedimentology**, 61 (3), 836-859.
- Özkul, M., Gökgöz, A., Kele, S., Baykara, M.O., Shen, C.C., Chang, Y-W., Kaya, A., Hancer, M., Aratman, C., Akin, T., Örü, Z. (2014): Sedimentological and geochemical characteristics of a fluvial travertine: A case from the eastern Mediterranean region. **Sedimentology**, 61 (1), 291-318.
- Özkul, M., Kele, S., Gökgöz, A., Shen, C.C., Jones, B., Baykara, M.O., Fórizs, I., Németh, T., Chang, Y-W., Alçiçek, M.C. (2013): Comparison of the Quaternary travertine sites in the Denizli extensional basin based on their depositional and geochemical data. **Sedimentary Geology**, 294, 179-204.
- Kern, Z., Patkó, M., Kázmér, M., Fekete, J., Kele, S., Pályi, Z. (2013): Multiple tree-ring proxies (earlywood width, latewood width and  $\delta^{13}\text{C}$ ) from pedunculate oak (*Quercus robur* L.), Nyírség, NE Hungary. **Quaternary International**, 293, 257-267.
- Kele, S., Özkul, M., Gökgöz, A., Fórizs, I., Baykara, M.O., Alçiçek, M.C., Németh, T. (2011): Stable isotope geochemical and facies study of Pamukkale travertines: New evidences of low-temperature non-equilibrium calcite-water fractionation. **Sedimentary Geology**, 238, 191-212.
- Demény, A., Kele, S., Siklósy, Z. (2010): Empirical equations for the temperature dependence of calcite-water oxygen isotope fractionation from 10 to 70 degrees C. **Rapid Comm. Mass Spec.**, 24, 3521-3526.
- Sierralta, M., Kele, S., Melcher, F., Hambach, U., Reinders, J., van Geldern, R., Frechen, M. (2010): Characterisation and Uranium-series dating of Travertine from Süttő in Hungary. **Quaternary International**, 222, 178-193.
- Kele, S., Demény, A., Siklósy, Z., Németh, T., Tóth, M., B. Kovács, M., (2008): Chemical and stable isotope composition of recent hot-water travertines and associated thermal waters, from Egerszalók, Hungary: Depositional facies and non-equilibrium fractionation. **Sedimentary Geology**, 211, 53-72.