ANDRÁS FALL, Ph.D.

Research Associate Professor
Bureau of Economic Geology
Jackson School of Geosciences
The University of Texas at Austin
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Updated: February 2026

Research Interests

My research investigates the nature, distribution, and role of fluids in the Earth's crust, with a focus on the coupled interaction between geochemical reactions and mechanical deformation. I examine how fluid pressure, mineral reactions, and fracturing interact to control permeability evolution, vein formation, and mass transfer in sedimentary basins, mineral deposits, and geothermal systems. Using an integrated analytical and experimental approach—including natural and synthetic fluid inclusion analysis, Raman spectroscopy, SEM, and hydrothermal experiments—I reconstruct paleo-fluid conditions and quantify hydro-chemo-mechanical feedbacks that drive episodic fluid flow and mineralization. I also study carbon mineralization and natural hydrogen generation in mafic and ultramafic rocks, drawing on natural analog systems to understand reaction-driven fracturing, CO_2 sequestration, and redox-controlled fluid processes relevant to energy transition and subsurface resource systems.

Professional Work Experience

Research Associate Professor (December 2023 – present)
Bureau of Economic Geology, Jackson School of Geosciences
The University of Texas at Austin

Research Scientist (September 2019 – November 2023)
Bureau of Economic Geology, Jackson School of Geosciences
The University of Texas at Austin

Research Associate (November 2011 – August 2019)
Bureau of Economic Geology, Jackson School of Geosciences
The University of Texas at Austin

Postdoctoral Fellow (2009-2011)
Bureau of Economic Geology, Jackson School of Geosciences
The University of Texas at Austin

Graduate Teaching/Research Assistant (2003-2008)
Department of Geosciences, Virginia Tech

Sample Preparatory and Microtechnical Laboratory Manager (2002-2003)
Department of Petrology-Geochemistry, Eötvös Loránd University, Budapest, Hungary

Areas of Expertise

- Aqueous geochemistry
- Fluid inclusion techniques
- Structural diagenesis
- Raman spectroscopy
- Hydrothermal experiments

Lab and Consortium management

Sept 2025-present: Co-Principal Investigator, Fracture Research and Application Consortium (FRAC), Bureau of Economic Geology, UT Austin
2011-present: Fluid inclusion lab, Principal Investigator Bureau of Economic Geology, UT Austin

2011-present: Hydrothermal lab, Principal Investigator, Bureau of Economic Geology, UT Austin

Academic Background

Ph.D. Virginia Tech (2005-2008)
Geosciences; Advisor: Dr. Robert J. Bodnar

M.S. Virginia Tech (2003-2005)
Geosciences; Advisors: Dr. Robert J. Bodnar & Dr. Csaba Szabó

M.S. University of Bucharest, Bucharest, Romania (2001-2002)
Geology-Petrology-Metallogeny; Advisors: Dr. Marin Şeclăman & Dr. Péter Luffi

B.S. Babeş-Bolyai University, Cluj-Napoca, Romania (1997-2001)
Geology-Geography; Advisor: Dr. Csaba Szabó

Awards and Fellowships

1st Runner Up – Tinker Family BEG Publication Awards (2019)
Bureau of Economic Geology, Jackson School of Geosciences, UT Austin
For publication: Fall A., Bodnar R.J. (2018) How precisely can the temperature of a fluid event be constrained using fluid inclusions? Economic Geology, v. 113, no. 8, 1817-1843.

Tinker Family BEG Best Publication Award (2016)
Bureau of Economic Geology, Jackson School of Geosciences, UT Austin
For publication: Fall A., Eichhubl P., Bodnar R.J., Laubach S.E., Davis S.J. (2015) Natural hydraulic fracturing of tight-gas sandstone reservoirs, Piceance Basin, Colorado. GSA Bulletin, v. 127, no. 1/2, p. 61-75.

President's Certificate for Excellence in Presentation (co-author) (2011)
American Association of Petroleum Geologists Energy Minerals Division – AAPG Annual Meeting, Houston

Certificate of Recognition, Excellence in Technical Presentation (co-author) (2011)
Society for Sedimentary Geology (SEPM) – AAPG Annual Meeting, Houston

Geosciences Graduate Research Fellowship (2008)
Department of Geosciences, Virginia Tech

C.G. Tillman Teaching Excellence Endowed Award (2006)
Department of Geosciences, Virginia Tech

Visiting Student Scholarship (September 1, 2000 – January 31, 2001)
Eötvös Loránd University, Budapest, Hungary, Department of Petrology and Geochemistry
Sponsored by the Departments of Education of Hungary and Romania

2nd place – Second National Scientific Conference for Romanian Geology Students (2001)
Babeș-Bolyai University, Cluj-Napoca

1st place – Annual National Scientific Student Conference for Hungarian Students– Transylvanian Regional (2000)
Babeș-Bolyai University, Cluj-Napoca, Romania.

Research Funding

Co-PI (since Sept 2025, 50%) and as Senior Researcher (since Nov 2011, 20%) contributor within the Fracture Research and Application Consortium. FRAC investigates reservoir-scale fracture systems by integrating mechanical and chemical processes across scales to better predict sub-seismic heterogeneities and deformation that control fluid flow. Approximate contribution to the Consortium budget during this period was ~US$ 850,000.

Senior Researcher – Predicting fracture porosity evolution in sandstones, Grant No. DE-FG02-03ER15430 Chemical Sciences, Geosciences, and Biosciences Division, Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy (2009-2019) (PI: Laubach) – US$ 110,244.5

PI – SUTUR II: Multi-faceted study on water cut in the Permian Wolfcamp in the Delaware Basin, West Texas, Task 7: Aqueous and hydrocarbon fluid inclusion geochemistry and implication for charge history, SHELL USA (2016-2019) – US$ 344,355.73

Senior Researcher – Structural-diagenetic characterization of natural fractures in the Lajas Fm., Neuquén Basin, Argentina; fracture cement petrography and fluid inclusion analysis, YPF Argentina (2016-2019) (PI: Ukar) – US$ 14,843,04

Senior Researcher – Formation mechanism of paleokarst in the Ordovician carbonates in the Halahatang area, Tarim Basin, China, China National Petroleum Company (CNPC)-USA and CNPC-Tarim Oilfield Company-China (PI: Fu, Ukar) – US$ 18,121.42

Senior Researcher – Natural Fracture Characterization in the Vaca Muerta Fm., Neuquén Basin, Argentina; fracture cement petrography and fluid inclusion analysis. YPF Argentina (2014-2017) (PI: Gale) – US$ 9,881.61

PI – Fractures in Devonian sandstone reservoirs, Subandean fold and thrust belt, Northern Bolivia, TOTAL, France (2014-2015) – US$ 45,470.00

PI – Experimental Hydrothermal Lab, Jackson School of Geosciences Startup Fund (2011) – US$ 95,000.00

PI – Fluid inclusion mapping of spatial and temporal variations in gas saturation in fractured sandstone reservoirs, Piceance Basin, Colorado. Structural Diagenesis Fellowship – GDL Foundation (2010) – US$ 9,000.00

Teaching Experience

Guest lecturer – GEO 391 Sandstone Petrology (2011-2014)
Department of Geological Sciences, Jackson School of Geosciences, UT Austin
Physical Geology Lab Instructor (2-3 classes/semester) (2004-2007)
Department of Geosciences, Virginia Tech *[Student evaluation Scores of 3.2 to 4 are very good to excellent; reference scale ranges from 1 -"poor" to 4 -"excellent"]*

Mentoring

Research Assistant Supervision

Stephanie R. Forstner, RSAII, Bureau of Economic Geology, UT Austin (2016-2018)

Student committees

Ervin Hrabovszki, Ph.D. Dissertation Committee member, University of Szeged, Hungary, (2021-2022)
Samantha Remigi, PhD Dissertation reviewer, Chemical, Geological and Environmental Sciences, University of Milano-Bicocca, Italy (June 2021)
Stephanie Forstner, Ph.D. student, Dissertation committee member (2020-2024), UT Austin
Qiqi Wang, Ph.D. student, Dissertation committee member (2019-2023), UT Austin
Emanuel Mororo, M.Sc. student. Thesis reviewer, Department of Petrology and Geochemistry, Institute of Earth Sciences, Eötvös University, Budapest, Hungary
Colin Sturrock, undergrad senior honors thesis committee member (2014-2015), UT Austin

Training – fluid inclusion techniques

Stephanie Forstner – as RSAII and Ph.D. student at Jackson School of Geosciences
Qiqi Wang – as Ph.D. student at Jackson School of Geosciences
Natchanan (Mint) Doungkaew – as Ph.D. student at Jackson School of Geosciences
Autumn Eakin – as M.S. student at Jackson School of Geosciences
Guangjian (Cecilia) Xu – as M.S. student at Jackson School of Geosciences
John Hooker – as RSAIII and Ph.D. student at Jackson School of Geosciences

Service and Outreach

Associate Editor, Journal of Geochemical Exploration (March 2022-February 2025)

Associate Editor, AAPG Bulletin (2018-2021)

Reviewer of research articles for:
AAPG Bulletin
Central European Journal of Geosciences
Earth and Planetary Science Letters
Earth Science Reviews
Economic Geology
Földtani Közlöny (in Hungarian)
Geochimica et Cosmochimica Acta
Geofluids
Geology
GSA Bulletin
Journal of South American Earth Sciences
Journal of Structural Geology
Marine and Petroleum Geology
Nature Communications
Ore Geology Reviews
Petroleum Geoscience
Terra Nova.

Reviewer of grant proposals for:

Lendület (Momentum) Research Program, Hungarian Academy of Sciences (MTA)
American Chemical Society, Petroleum Research Fund
Hungarian Scientific Research Fund (OTKA).

Committees

Technical session advocate and co-chair, The power of hard rocks: driving the energy transition and serving society
Geological Society of America Annual Meeting, San Antonio, Texas (October 2025)

Organizing committee member, First North American Workshop on Critical Mineral Research, Development and Education
The University of Texas at Austin, Austin Texas (August 2025)

Technical session advocate and co-chair, Geochemical and geodynamical processes of the lithosphere based on fluid, silicate, carbonatite, and sulfide melt inclusions of the upper mantle and crust (session in honor of Dr. Csaba Szabó)
Goldschmidt Conference, Lyon, France (July 2023)

Chair, Grants, Appointments and Awards Committee
Bureau of Economic Geology, Jackson School of Geosciences
The University of Texas at Austin (2020-2021)

Member, Grants, Appointments and Awards Committee
Bureau of Economic Geology, Jackson School of Geosciences
The University of Texas at Austin (2019-2020)

Organizing committee member, 14th Pan-American Current Research on Fluid Inclusions Conference, Rice University, Houston, Texas (June, 2018)

Technical session advocate and co-chair, Fluids and melts in geologic systems
Geological Society of America Annual Meeting, Seattle, Washington (October 2017)

Judge, 2nd Annual Jackson School of Geosciences Student Research Symposium
The University of Texas at Austin, Austin, Texas (February 2013)

Member, Graduate Student Liaisons Committee, Department of Geosciences
Virginia Tech, Blacksburg, VA (2004-2005)

Volunteer

Explore UT Austin (2002)

Lab Coordinator

Physical Geology, Department of Geosciences
Virginia Tech, Blacksburg, VA (2007)

Continuing Education, Workshops and Short Courses

EURISPET (EURopean Intensive Seminars of PETrology – A Marie Curie Series of Events) – Petrology of the lithosphere in extensional settings – short course, Budapest, Hungary (2008)

Fluid Inclusions Applied in Petroleum Geology – short course, Siena, Italy (2005)

Energy modeling in minerals: 4th Summer school of the European Mineralogical Union, Budapest, Hungary (2002)

Environmental mineralogy: 2nd Summer school of the European Mineralogical Union, Budapest, Hungary (2000)

Professional Society Memberships

Active
Geochemical Society – since 2007
Geological Society of America – since 2012
Mineralogical Society of America – since 2025
Past
American Geophysical Union – since 2004
Society of Economic Geologists – since 2006
American Association of Petroleum Geologists – since 2009

Language Skills

Hungarian (10); English (9); Romanian (9)
Also studied: German (3), Russian (2)
Minor knowledge in Italian, Spanish, French.

Publications

Google Scholar profile: https://scholar.google.com/citations?hl=en&user=PYiU18sAAAAJ

Orcid ID: https://orcid.org/0000-0002-3545-5908

Peer reviewed journal articles and book chapters

31. Kyle J.R., **Fall A.**, Nicot J.-P. (2025) Mississippi Valley-type mineralization in the Jurassic Smackover Formation, Gulf Coast Basin, USA: Controls on the origin of Zn-Pb-Ag systems in deep sedimentary basins. *Journal of Geochemical Exploration* 277, 104807, 14 p. https://doi.org/10.1016/j.gexplo.2025.107807

30. Ukar E., **Fall A.**, Laubach S.E., Ketcham R. (2025) Rapid crack-seal growth of Faden quartz. *Journal of Structural Geology* 194:105343, 20 p. https://doi.org/10.1016/j.jsg.2025.105343.

29. Corrêa R., Carvalho B., Ukar E., Laubach S.E., Pestilho A.L.S., **Fall A.**, Larson T., Stockli D., Stockli L., Lüders V., Niedermann S., Banks D.A. (2025) Brittle deformation and hydrothermal alteration in the Barra Velha Formation, Santos Basin, offshore Brazil. *AAPG Bulletin* 109, p. 545-590, https://doi.org/10.1306/03182524012

28. Elliott S.J., Forstner S.R., Wang Q., Corrêa R., Shakiba M., Fulcher S.A., Hebel N.J., Lee B.T., Tirmizi S.T., Hooker J.N., **Fall A.**, Olson J.E., Laubach S.E. (2025) Diagenesis is key to unlocking outcrop fracture data suitable for quantitative extrapolation to geothermal targets. *Frontiers in Earth Sciences* 13:1545052, 38 p. https://doi.org/10.3389/feart.2025.1545052

27. Veeningen R., **Fall A**., Böttcher M. E., Eichhubl P., Decker K., Grasemann, B. (2024) Deformation and fluid flow history of a fractured basement hydrocarbon reservoir below the Sab'atayn Basin, Habban Field, Yemen. *Marine and Petroleum Geology* 169, no. 107082, 16 p., http://doi.org/10.1016/j.marpetgeo.2024.107082.

26. Gale J.F.W., **Fall A.**, Yurchenko I.A., Walaa A.A., Laubach S.E. Eichhubl P., Bodnar R.J. (2022) Opening-mode fracturing and cementation during hydrocarbon generation in shale: An example from the Barnett Shale, Delaware Basin, West Texas. *AAPG Bulletin* 106, p. 2103-2141. https://doi.org/10.1306/01062219274

25. Nicot. J.-P., Darvari R., Eichhubl P., Scanlon B.R., Elliott B.A., Bryndzia L.T., Gale J.F.W., **Fall A.** (2020) Origin of low salinity, high volume produced waters in the Wolfcamp Shale (Permian), Delaware Basin, USA. *Applied Geochemistry* 122, 18 p. https://doi.org/10.1016/j.apgeochem.2020.104771.

24. **Fall A.** (2020) Applications of fluid inclusions in structural diagenesis. *In:* Lecumberri-Sanchez, P., Steele-MacInnis, M., Kontak, D. (eds.) Fluid and Melt Inclusions: Applications to Geologic Processes, *Topics in Mineral Sciences,* v. 49, p. 17-46. https://doi.org/10.3749/9780921294719.ch02

23. Ukar E., Lopez R.G., Hryb D., Gale J.F.W., Manceda R., **Fall A.**, Brisson I., Hernandez-Bilbao E., Weger R.J., Marchal D., Zanella A., Cobbold P.R. (2020) Natural fractures in the

Vaca Muerta Formation: from core and outcrop observations to subsurface models. *In:* Minisini D., Fantin M., Noguera I.L., (Eds.) Integrated Geology of Unconventionals: The case of the Vaca Muerta Play (Argentina), *AAPG Memoir Series,* v. 121, p. 377-416. https://doi.org/10.1306/13682234M1203837.

22. Denny A.C., **Fall A.**, Orland I.J., Valley J.W., Eichhubl P., Laubach S.E., (2020) A prolonged history of pore water $\delta^{18}O$ evolution in the cretaceous Travis Peak Formation in East Texas. *GSA Bulletin*, v. 132; no. 7/8; p. 1626–1638*,* https://doi.org/10.1130/B35291.1.

21. Baques, V., Ukar, E., Laubach, S.E., Forstner, S.R., **Fall, A.** (2020) Fracture, dissolution, and cementation events in Ordovician carbonate reservoirs, Tarim Basin, NW China, *Geofluids*, v. 243, p. 1-28, https://doi.org/10.1155/2020/9037429.

20. Weisenberger T., Eichhubl P., Laubach S.E., **Fall A.** (2019) Degradation of fracture porosity in sandstone by carbonate cement, Piceance basin, Colorado, USA. *Petroleum Geoscience,* v. 25, p. 354-370, https://doi.org/10.1144/petgeo2018-162

19. Guzmics T., Berkesi M., Bodnar R.J., **Fall A.**, Bali E., Milke R., Vetlényi E., Szabó Cs. (2019) Natrocarbonatites: a hidden product of three phase immiscibility, Geology, v. 47, 527-530. https://doi.org/10.1130/G46125.1

18. **Fall A.**, Bodnar R.J. (2018) How precisely can the temperature of a fluid event be constrained using fluid inclusions? *Economic Geology,* v. 113, no. 8, 1817-1843. http://doi.org/10.5382/econgeo.2018.4614.

17. Jiang L., Hu S., Zhao W., Xu Z., Shi S., Fu Q., Zeng H., Liu W., **Fall A.** (2018) Diagenesis and its impact on a microbially derived carbonate reservoir from the Middle Triassic Leikoupo Formation, Sichuan Basin, China. *AAPG Bulletin*, v. 102, p. 2599-2628. http://doi.org/10.1306/05111817021.

16. Sturrock C.P., Catlos E.J., Miller N.R., Akgun A., **Fall A.**, Gabitov R.I., Yilmaz I.O., Larson T., Black K.N. (2017) Fluids along the North Anatolian Fault, Niksar basin, north central Turkey: Insight from stable isotopic and geochemical analysis of calcite veins. *Journal of Structural Geology*, v. 101, 58-79, http://doi.org/10.1016/j.jsg.2017.06.004.

15. **Fall A.**, Ukar E., Laubach S.E. (2016) Origin and timing of Dauphiné twins in quartz cement in fractured sandstones from diagenetic environments: Insight from fluid inclusions. *Tectonophysics*, v. 687, p. 195-209, http://doi.org/10.1016/j.tecto.2016.08.014.

14. Laubach S.E., **Fall A.**, Copley L.K., Marrett R., Wilkins S.J. (2016) Fracture porosity creation and persistence in a basement-involved Laramide fold, Upper Cretaceous Frontier Formation, Green River Basin, U.S.A. *Geological Magazine*, v. 153, p. 887-910, http://doi.org/10.1017/S0016756816000157.

13. Hooker J.N., Larson T., Eakin A., Laubach S.E., Eichhubl P., **Fall A.**, Marrett R. (2015) Fracturing and fluid-flow in a sub-décollement sandstone; or, a leak in the basement. *Journal of the Geological Society, London*, v. 172, p. 428-442, http://doi.org/10.1144/jgs2014-128.

12. **Fall A.**, Eichhubl P., Bodnar R.J., Laubach S.E., Davis S.J. (2015) Natural hydraulic fracturing of tight-gas sandstone reservoirs, Piceance Basin, Colorado. *GSA Bulletin*, v. 127, no. 1/2, p. 61-75, http://doi.org/10.1130/B31021.1. *[Tinker Family BEG Best Publication Award (2016); Top 10 most read papers GSA Bulletin (Jan 2015-Feb 2016)].*

11. Gale J.F.W., Laubach S.E., Olson J.E., Eichhubl P., **Fall A.** (2014) Natural fractures in shale: a review and new observations. *AAPG Bulletin*, v. 98, no. 11, p. 2165-2216, http://doi.org/10.1306/08121413151.

10. Bodnar R.J., Azbej T., Becker S.P., Cannatelli C., **Fall A.**, Severs M.J. (2013) Whole Earth geohydrologic cycle: From the clouds to the core: The distribution of water in the dynamic Earth system, *in* Bickford, M.E., ed., The Web of Geological Sciences: Advances, Impacts, and Interactions: *Geological Society of America Special Paper 500*, p. 431-461, http://doi.org/10.1130/2013.2500(13).

9. **Fall A.**, Eichhubl P., Cumella S.P., Bodnar R.J., Laubach S.E., Becker S.P. (2012) Testing the basin-centered gas accumulation model using fluid inclusion observations: southern Piceance Basin, Colorado. *AAPG Bulletin*, v. 96, no. 12, p. 2297-2318. http://doi.org/10.1306/05171211149. *[2nd place, Best Paper in AAPG Bulletin, by vote of editorial board].*

8. **Fall A.**, Tattitch B., Bodnar R.J. (2011): Combined microthermometric and Raman spectroscopic technique to determine the salinity of H_2O-CO_2-NaCl fluid inclusions based on clathrate melting. *Geochimica et Cosmochimica Acta*, v. 75, p. 951-964. http://doi.org/10.1016/j.gca.2010.11.021.

7. **Fall A.**, Rimstidt J.D., Bodnar R.J. (2009): The effect of fluid inclusion size on determination of homogenization temperature and density of liquid-rich aqueous inclusions. *American Mineralogist*, v. 94, p. 1569-1579. http://doi.org/10.2138/am.2009.3186.

6. Becker S.P., **Fall A.**, Bodnar R.J. (2008): Synthetic Fluid Inclusions. XIX. PVTX properties of high salinity H_2O-NaCl solutions (>30 wt% NaCl): Application to fluid inclusions that homogenize by halite disappearance from porphyry copper and other hydrothermal ore deposits. *Economic Geology*, v. 103, p. 539-554. http://doi.org/10.2138/am.2009.3186.

5. **Fall A.**, Bodnar R.J., Szabó Cs., Pál-Molnár E. (2007): Fluid evolution in the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania. *Lithos*, v. 95, p. 331-345. http://doi.org/10.1016/j.lithos.2006.08.005

Non-peer reviewed journal articles

4. Wang Q., Laubach, S.E., **Fall A.** (2019) Coupled effects of diagenesis and deformation on fracture evolution in deeply buried sandstones, 53rd US Rock Mechanics/Geomechanics Symposium, v. 53, 6 p. link

3. **Fall, A.**, Eichhubl, P., Laubach, S.E. (2013) Timing and processes of fracture formation in tight-gas sandstone reservoirs using fluid inclusions, Proceeding of the Unconventional Resources Technology Conference (URTeC) Denver, Colorado, USA, 12-14 August, SPE 168833/URTeC 1582124, p. 1689-1694.

2. Pommer, L., Gale, J.F.W., Eichhubl, P., **Fall, A.**, Laubach, S.E. (2013) Using structural diagenesis to infer the timing of natural fractures in the Marcellus Shale. Proceedings of the Unconventional Resources Technology Conference (URTeC) Denver, Colorado, USA, 12-14 August, URTeC Control ID Number: 1580135, p. 1639-1644.

1. Hooker J.N., Laubach S.E., Kaylor A., Eichhubl P., **Fall A.** (2011). Size, spacing, and opening history of natural fractures, preliminary results from El Alamar Formation, NE Mexico, Gulf Coast Association of Geological Societies Transactions, v. 61, p. 233-243.

Edited abstract volumes

1. **Fall A.** (2018), Editor – Abstract volume. 14th Pan-American Current Research on Fluid Inclusions Conference, Rice University, Houston, Texas, USA. 120 p. Link

Patents

1. Larson, T., Ukar, E., Zhang T., **Fall, A.**, Methods of enhanced hydrogen generation from iron-bearing rocks. U.S. Patent Application No. 63/708,972.

Peer reviewed extended abstracts

2. **Fall A.** (2021). Rock deformation at the interaction of mechanical and geochemical processes in sedimentary basins (Kőzetdeformáció mechanikai és geokémiai folyamatok határán üledékes medencékben). Extended Abstract, In Hungarian, with English summary, 6 p. Link
1. Ukar E., Lopez R.G., **Fall A.**, Manceda R., Gale J.F.W., Laubach S.E. (2017) Vertical fractures and a new type of kinematic indicator in bed-parallel veins (beef) in the Vaca

Muerta Formation at Arroyo Mulichinco, Neuquén Basin. Geologia, Presente y Futuro, XX Congreso Geológico Argentino, p. 163-165. Link

Abstracts and extended abstracts

90. **Fall, A.**, Royer, K., Lamadrid, H., Gelencser, O., Tongwei, Z., Ukar, E., Larson, T.E. (2025) Nickel-enhanced hydrogen generation during low-temperature serpentinization: insights from synthetic fluid inclusion microreactors. Geological Society of America Abstracts with Program. Vol. 57, No. 6, doi:10.1130/abs/2025AM-10585.

89. Ukar, E., Kelemen, P.B., Arasada, R.C., Bhattacharya, S., Ugurhan, M., Gil Egui, R., Owusu-Adjapong, E., **Fall, A.**, Teng, Y., Espinoza, D.N., Gale, J.F.W, Horne, E.A., Moscardelli, L. (2025) Subsurface mafic and ultramafic rock mapping and analysis for carbon mineralization in the United States (SubMAP-CO_2). Geological Society of America Abstracts with Program. Vol. 57, No. 6, doi:10.1130/abs/2025AM-10506.

88. Rodriguez, C.E., Arasada, R.C., Bhattacharya, S., **Fall, A.**, Horne, E.A., Larson, T.E., Pasquet, G., Saleh, S.J., Schuba, C. N., Thompson, J.O., Ukar, E., Zhang, T. (2025) Natural hydrogen and helium resources in Texas: Where are the sweet spots? Geological Society of America Abstracts with Program. Vol. 57, No. 6, doi:10.1130/abs/2025AM-7768.

87. Gelencser, O., Ukar, E., **Fall, A.**, Tongwei, Z., Larson, T.E. (2025) Experimental Quantification of the hydrogen production potential of a silica undersaturated basalt from Central Texas. Geological Society of America Abstracts with Program. Vol. 57, No. 6, doi:10.1130/abs/2025AM-6236.

86. Zahm, C., Ukar, E., **Fall, A.**, Stockli, l., Stockli, D. (2025) Laramide-age, oblique-slip faults in Texas. Geological Society of America Abstracts with Program. Vol. 57, No. 6, doi:10.1130/abs/2025AM-4829.

85. Larson, T., Ukar, E., Gelencser, O., Zhang, T., **Fall, A.** (2025) Geochemical exploration techniques to quantify hydrogen generation potential in complex geologic terranes. IMAGE 2025, Houston, Texas. Abstract volume.

84. Forstner, S.R., Laubach, S.E., Hennings, P., **Fall, A.**, Hooker, J.N., Olson. J.E. (2024) Fracture history and paleostress trajectories, Cambrian Flathead sandstone, Teton Range, Wyoming, USA. GSA Abstracts with programs vol. 56, No. 5, doi:10.1130/abs/2024AM-404786

83. Gale, J.F.W., Laubach, S.E., Ukar, E., Elliott, S.J., **Fall, A.**, Peng, S., Olson, J.E. (2024) Characterizing natural and hydraulic fractures in energy projects. AAPG SW Section Annual Convention, Abilene, Texas. Abstr. vol., 1p.

82. **Fall A.**, Ukar E., Blamey N. (2023) Faden quartz textures and fluid inclusions as guides for understanding fracturing processes in geothermal settings. 27th European Current Research on Fluid Inclusions 2023, Reykjavik, Iceland, Abstract v., p. 67.

81. **Fall A.**, Ukar E. (2022) The healing power of Faden quartz. 15th Pan-American Current Research on Fluid Inclusions 2022, Edmonton, Canada (virtual). Abstract v., p. 45-46.

80. **Fall A.**, Eichhubl P., Nicot J.-P., Gale J.F.W. (2021) Paleofluid evolution in the Wolfcamp Formation, Permian Delaware Basin, West Texas. E-CROFI (26th European Current Research on Fluid Inclusions) On-line Conference, Abstract v., p. 25-26.

79. **Fall A.**, Dennis P.F., Gale J.F.W., Ukar E. (2019) Paleotemperature constraints of calcite fracture cementation in shale: a comparison of fluid inclusion and carbonate clumped isotope thermometry. 25th European Current Research on Fluid Inclusions, Budapest, Hungary, 23-27 June, Acta Miner.-Petrograph., Abstract Series 10, p. 35.

78. Gale J.F.W., **Fall A.**, Ali W.A., Laubach S.E., Eichhubl P., Bodnar R.J. (2019) Opening-mode fracturing and cementation timing in the Barnett Shale, Delaware Basin, West Texas. AAPG ACE 2019, San Antonio, Abstr. vol.

77. Eichhubl P., Gale, J.F.W., Laubach S.E., **Fall A.**, Ukar E. (2019) What drives the formation of natural fractures in unconventional reservoirs? AAPG ACE 2019, San Antonio, Abstr. vol.

76. Denny A., **Fall A.**, Orland I., Valley J.W., Eichhubl P., Laubach S.E. (2018) Coupling SIMS analyses, fluid inclusions, and 1-D burial modeling to constrain pore water $\delta^{18}O$ evolution in sandstones of the Cretaceous Travis Peak Formation in East Texas. Geological Society of America Abstracts with Programs. Vol. 50, No. 6, doi:10.1130/abs/2018AM-323677

75. *Extended:* **Fall A.**, Bodnar R.J. (2018) Constraining the history of fluid events using the fluid inclusion assemblage (FIA) method for collecting, displaying and interpreting microthermometric data. 14th Pan-American Current Research on Fluid Inclusions 2018, Houston, Texas, USA. Abstract v., p. 45-46.

74. *Extended:* Forstner S.R., Laubach S.E., **Fall A.** (2018) Evolution of deformation in the Buck Mountain Fault Damage zone, Cambrian Flathead Sandstone, Teton Range, Wyoming. 14th Pan-American Current Research on Fluid Inclusions 2018, Houston, Texas, USA. Abstract v., p. 47.48.

73. *Extended:* Wang. Q., Laubach S.E., **Fall A.** (2018) Unraveling the history of ultra-deep fractures in sedimentary basins. 14th Pan-American Current Research on Fluid Inclusions 2018, Houston, Texas, USA. Abstract v., p. 103-104.

72. **Fall A.**, Ukar E., Lopez R.G., Gale J.F.W., Manceda R., Laubach S.E. (2017) Combined effects of overpressure and bed-parallel contraction on the formation of bed-parallel and vertical fractures in the Vaca Muerta Formation, Argentina. Geological Society of America, Seattle, Washington, USA. Abstracts with Programs. Vol. 49, No. 6, doi:10.1130/abs/2017AM-301560.

71. Baques V., Ukar E., Zhuang L., Yuan W., Laubach S.E., Forstner S.R., **Fall A.**, Sun C. (2017) Decameter-scale bit drops at 7 km depth in the Yijianfang Formation, Halahatang oilfield, Tarim Basin, China: fault-related dee-seated dissolution. Geological Society of America, Seattle, Washington, USA. Abstracts with Programs. Vol. 49, No. 6, doi:10.1130/abs/2017AM-3058412017.

70. Forstner S.R., Laubach S.E., **Fall A.** (2017) Regional brittle deformation, strain, and paleostress trajectories, Teton Range, Wyoming. Geological Society of America, Seattle, Washington, USA. Abstracts with Programs. Vol. 49, No. 6, doi: 10.1130/abs/2017AM-308570.

69. **Fall A.**, Ukar E., Lopez R.G., Gale J.F.W., Manceda R., Laubach S.E. (2017) Bed-parallel beef veins and cross-cutting vertical fractures in the Vaca Muerta Formation, Argentina: a fracture opening and cementation history. 24th European Current Research on Fluid Inclusions, Nancy, France, 23-29 June.

68. **Fall A.**, Ukar E., Lopez R.G., Gale J.F.W., Manceda R., Laubach S.E. (2017) Timing of opening and cementation of bedding-parallel and vertical fractures, Vaca Muerta Formation, Argentina. AAPG Datapages/Search and Discovery Article #90291, 2017 AAPG Annual Convention and Exhibition, Houston, Texas, 2-5 April.

67. Ukar E., Lopez R.G., **Fall A.**, Manceda R., Gale J.F.W., Laubach S.E. (2017) New type of kinematic indicator in bedding-parallel veins, and vertical fracture abundance and timing in Vaca Muerta Formation, Argentina. AAPG Datapages/Search and Discovery Article #90291, 2017 AAPG Annual Convention and Exhibition, Houston, Texas, 2-5 April.

66. **Fall A.**, Ukar E., Laubach S.E. (2016) Origin and timing of Dauphiné twins using fluid inclusions in quartz-cement fractures in sandstones from diagenetic environments. AGU Fall Meeting, San Francisco, California, 12-16 December, Abstract T21D-2864, 1 p.

65. *Extended:* **Fall A.**, Ukar E., Marrett R., Laubach S. E. (2015) Dauphiné twin planes in quartz trap fluid inclusions and indicate paleostress in deeply buried sandstones, 23rd European Current Research on Fluid Inclusions, Leeds, United Kingdom, 27-29 June, Abstract vol., p. 61-61.

64. Eichhubl P., Alzayer Y., Laubach S. E., **Fall A.** (2014) Growth kinematics of opening-mode fractures. AGU Fall Meeting, San Francisco, California, 15-19 December, Abstract H51Q-02, 1 p.

63. **Fall A.**, Eichhubl P., Laubach S.E. (2014) Propagation rate and timing of natural fractures in deep reservoirs. 2014 GSA Annual Meeting in Vancouver, British Colombia, Canada.

62. Bodnar R.J., **Fall A.**, Esposito R., Moore L., Gazel P. (2014) Protocal for collecting, interpreting and reporting fluid and melt inclusion data. 12th Pan-American Current Research on Fluid Inclusions 2014, Denver and Pingree Park, Colorado, June 4-6. Abstr. v.

61. Bodnar R.J., **Fall A.**, Esposito R., Moore L., Gazel E. (2014) Protocol for collecting, interpreting and reporting fluid and melt inclusion data. 5th Asian Current Research on Fluid Inclusions, Xi'an, China, May 16-18, Abstract volume, 2 pages.

60. Ukar E., Laubach S.E., **Fall A.**, Eichhubl P. (2014) Synkinematic quartz cementation in partially open fractures in sandstones. Geophysical Research Abstracts vol. 16, EGU2014-4545, European Geosciences Union General Assembly, April 27-May 2.

59. Alzayer, Y.A., **Fall A.**, Laubach S.E., Eichhubl P. (2014) Fracture Growth Processes in Sandstone Inferred by Textural and Fluid Inclusion Investigations of Crack-Seal Fracture Cements. AAPG Datapages/Search and Discovery Article # 90189, AAPG Annual Convention and Exhibition, Houston, Texas, April 6-9.

58. Ukar E., Ozkul, C., Eichhubl P., **Fall A.** (2014) Structural-Diagenetic Evolution of Fractures in Folds: Nikanassin and Cardium Fms. Alberta Foothills, Canada. AAPG Datapages/Search and Discovery Article # 90189, AAPG Annual Convention and Exhibition, Houston, Texas, April 6-9.

57. Eichhubl P., **Fall A.**, Laubach S.E., Bodnar R.J., Davis J.S. (2013) Natural hydraulic fracturing of tight-gas sandstone reservoirs, Piceance Basin, Colorado. Geological Society of America Abstracts with programs, v. 45, no.7, p. 448.

56. Bodnar R.J., Azbej T., Becker S.P., Cannatelli C., **Fall A.**, Severs M.J. (2013) Water, water everywhere. Geological Society of America Abstracts with programs, v. 45, no.7, p. 36.

55. **Fall A.**, Eichhubl P., Laubach S.E. (2013) A history of natural fracture propagation in deep gas reservoirs using fluid inclusions, 22nd European Current Research on Fluid Inclusions, Antalya, Turkey, 4-9 June, *in* Hanilçi, N., Bozkaya, G., eds., Abstract book, p. 45-46.

54. **Fall A.**, Eichhubl P., Black, K., Laubach S.E. (2013) A 48 m.y. history of fracture propagation. AAPG Annual Convention and Exhibition, Pittsburgh, Pennsylvania. Abstract vol., abs. 1556361, 1 p.

53. Ukar E., Eichhubl P., **Fall, A.**, Hooker J.N., (2013) Outcrop to core comparison of natural fractures in a tight-gas sandstone reservoir, Alberta Foothills, Canada. AAPG Annual Convention and Exhibition, Pittsburgh, Pennsylvania. Abstract vol., abs. 1556301, 1 p.

52. **Fall A.**, Eichhubl P. Black K., Laubach S.E. (2013), A chronicle of natural fracture propagation using fluid inclusions, 47th South-Central Section Annual GSA Meeting, Austin, Texas, 4-5 April, Geological Society of America Abstracts with Programs, v. 45, No. 3, p. 74.

51. Ukar E., Eichhubl P., **Fall A.** (2013) Structural-diagenetic controls on fracture opening in the Nikanassin Formation, Alberta Foothills, 47th South-Central Section Annual GSA Meeting, Austin Texas, 4-5 April, Geological Society of America Abstracts with Programs, v. 45, No. 3, p. 75.

50. **Fall A.**, Eichhubl P., Laubach S.E., Bodnar R. J. (2012) Timing and duration of gas charge-driven fracturing in tight-gas sandstone reservoirs based on fluid inclusion observations: Piceance Basin, Colorado, AGU Fall Meeting, San Francisco, California, 3-7 December, Abstract 1496247, 1 p.

49. Eichhubl P., **Fall A.**, Prodanovic, M., Weisenberger T., Ukar E., Laubach S.E., Gale J.F. (2012) Chemical-mechanical interactions during fracture growth in tight-gas and oil reservoirs: implications for flow during reservoir charge and production, AGU Fall Meeting, San Francisco, California, 3-7 December, Abstract 1502338, 1 p.

48. Ukar E., Eichhubl P., **Fall A.**, Hooker J.N. (2012) Structural-diagenetic controls on fracture opening in tight-gas sandstone reservoirs, Alberta Foothills. AGU Fall Meeting, San Francisco, California, 3-7 December, Abstract 1476703, 1 p.

47. **Fall A.**, Eichhubl P., Cumella S.P., Laubach S.E., Bodnar R.J. (2012) Testing the basin-centered gas accumulation model using fluid inclusion observations: southern Piceance Basin, Colorado. Geological Society of America Abstracts with Programs, v. 44, No. 7, p. 594.

46. Pommer L., Gale J.F.W., Eichhubl P., **Fall A.**, Laubach S.E. (2012) Using structural diagenesis to infer the timing of natural fractures in the Marcellus shale. Geological Society of America Abstracts with Programs, v. 44, no. 7, p. 488.

45. Weisenberger T.B., Eichhubl P., **Fall A.**, Laubach S.E. (2012) Fracture degradation by carbonate cement in tight-gas sandstones, Piceance Basin, Colorado. Proceedings of the 34th International Geological Congress, 5-10 August 2012, Brisbane, Australia, 2681.

44. **Fall A.**, Gale J.F. W., Eichhubl P., Ali W.A., Laubach S.E., Bodnar, R.J. (2012) Opening-mode fracturing and cementation during hydrocarbon generation in mudrocks: an example from the Barnett Shale, West Texas. Goldschmidt 2012 Conference, Montréal, Québec, Canada, June 24-29. Abstract v., 23A1-15.

43. *Extended:* **Fall A.**, Weisenberger T.B., Eichhubl P., Laubach S.E., Davis J.S., Bodnar R.J. (2012) Diagenetic controls on carbonate fracture cementation in tight-gas sandstones. 11th Pan-American Current Research on Fluid Inclusions 2012, Windsor, Ontario, Canada. Abstract v., p. 31-32.

42. Weisenberger T.B., **Fall A.**, Hooker J.N., Eichhubl P., Laubach S.E., Davis J.S. (2012) Predicting fracture porosity degradation by calcite cement in Mesaverde Group sandstones, Piceance Basin, Colorado. AAPG Annual Convention and Exhibition, Long Beach, California. Abstract vol., abs. 1232574, 1 p.

41. Gale J.F.W., Pommer L., Ouyang X., **Fall A.**, Eichhubl P., Olson J.E., Laubach S.E. (2012) Natural fracture characterization in shale-gas reservoirs: spatial organization and fracture sealing. AAPG Annual Convention and Exhibition, Long Beach, California. Abstract vol., abs. 1236689, 1 p.

40. Eichhubl P., Gale J.F.W., Olson J.E., Laubach S.E., Hooker J.N., **Fall A.**, Weisenberger T.B., Ukar E. (2012) What can outcrop and core-based observations tell us about natural fractures in unconventional reservoirs? AAPG Annual Convention and Exhibition, Long Beach, California. Abstract vol., abs. 1236894, 1 p.

39. **Fall A.**, Eichhubl P., Bodnar R.J., Laubach S.E. (2011) Assessment of pore fluid pressure history in basin-centered gas accumulations using fluid inclusions, Goldschmidt 2011 Conference, Prague, Czech Republic, August 14-19, Mineralogical Magazine, v. 75 (3), p. 826.

38. *Extended:* **Fall A.**, Eichhubl P., Laubach S.E., Bodnar R.J. (2011) Coupled pore fluid pressure oscillation and natural fracture opening in tight-gas sandstone reservoirs: Piceance Basin, Colorado, USA, *in* Bakker R.J., Baumgartner M., Doppler G., 21st European Current Research on Fluid Inclusions, Leoben, Austria, 9-11August, Berichte der Geologischen Bundesanstalt 87, p. 86-87.

37. **Fall A.**, Eichhubl P., Bodnar R.J., Laubach S.E. (2011) Testing the basin-centered gas model using fluid inclusion observations, AAPG Annual Convention and Exhibition, Houston, Texas. Abstract v., p. 56-57.

36. Gale J.F.W., Eichhubl P., **Fall A.**, Laubach S.E. (2011) Natural fractures in shales: timing, sealing, mechanisms of formation, and relevance for shale-gas reservoirs, AAPG Annual Convention and Exhibition, Houston, Texas. Abstract v., p. 64-65.

35. Hooker J.N., **Fall A.**, Xu G., Kaylor A., Ahn H., Eichhubl P., Laubach S.E. (2011) Predicting open natural fractures in unconventional sandstone reservoirs: spatial distribution, diagenesis, timing, and opening rate, AAPG Annual Convention and Exhibition, Houston, Texas. Abstract v., p. 85-86.

34. Kaylor A., Eichhubl P., Laubach S.E., **Fall A.**, Hooker J.N. (2010): A fluid inclusion and cathodoluminescence approach to model fracture growth in the Triassic-Jurassic La Boca Formation, Northeastern Mexico, *in* Denver GSA Annual Meeting, Abstracts with Program, v. 42, No. 5, p. 472.

33. Xu G., **Fall A.**, Eichhubl P., Laubach S.E. (2010): Combined fluid inclusion-SEM-cathodoluminescence analysis of microfracture opening in a tight-gas sandstone outcrop analog: Eriboll Formation, NW Scotland, *in* Denver GSA Annual Meeting, Abstracts with Program, v. 42, No. 5, p. 472.

32. Laubach S.E., Ellis M., Hargrove P., Eichhubl P., **Fall A.**, Fomel S.B. (2010): Contrasts in fracture array intensity, connectivity, and porosity associated with faults in tight fluvial and marine sandstones: evidence from outcrop analogs and core (abs.), *in* AAPG International Conference: The geology of unconventional gas plays: The Geological Society, London, October 5–6, p. 53–54.

31. Eichhubl P., **Fall A.**, Hooker J.N., Davis J.S., Becker S.P., Laubach S.E., Bodnar R.J. (2010): Timing and stratigraphic distribution of natural fractures in tight gas reservoirs in the Piceance Creek field, Colorado, USA, based on fluid inclusion and fracture scaling analyses (abs.), *in* AAPG International Conference: The geology of unconventional gas plays: The Geological Society, London, October 5–6, p. 51.

30. Gale J.F.W., Eichhubl P., **Fall A.**, Laubach S.E. (2010): Natural fractures in shales: timing, sealing, mechanisms of formation, and relevance for shale-gas reservoirs (abs.), *in* AAPG International Conference: The geology of unconventional gas plays: The Geological Society, London, October 5–6, p. 30.

29. Gale J.F.W., Laubach S.E., Eichhubl P., **Fall A.** (2010): Natural fractures in shales: timing, mechanisms of formation, and relevance for shale-gas reservoirs (abs), *in* New Zealand Geological Society Annual Meeting, Oamaru, New Zealand: New Zealand Geological Society Miscellaneous Publication 128A & B, ISBN 978-1-877480-07-2 and 978-1-877480-08-9, CD-ROM.

28. **Fall A.**, Eichhubl P., Bodnar R.J., Laubach S.E. (2010): Crack-seal cementation of natural fractures recording pore-fluid evolution in tight-gas sandstone reservoirs. 20th General Meeting of the International Mineralogical Association, Budapest, Hungary. Acta Min.-Pet. Abstr. Ser., v.6, p. 193.

27. **Fall A.**, Eichhubl P., Bodnar R.J., Becker S.P., Laubach S.E. (2010): Pore fluid evolution in tight-gas sandstone reservoirs based on crack-seal cementation of natural fractures. 10th Pan-American Current Research on Fluid Inclusions 2010, Las Vegas, Nevada, USA. Abstract v., p. 41-42.

26. Kaylor A., Laubach S.E., Eichhubl P., **Fall A.** (2010): Timing and rate of fracture opening in sandstone: implications for basin centered gas deposits, *in* Stress, strain, and natural fractures, GeoCanada 2010, Working with the Earth, Calgary, Alberta, May 10–14.

25. Eichhubl P., Hooker J. N., **Fall A.**, Laubach S. E. (2010): Strain rates of opening-mode fractures in deep basinal settings: European Geosciences Union-Geophysical Research Abstracts, v. 12, EGU2010-5645.

24. Laubach S.E., Ellis M. A., Hargrove P., Eichhubl P., **Fall A.** (2010): Contrasts in fracture array intensity, connectivity and porosity associated with faults in tight fluvial and marine sandstones, AAPG Annual Meeting, New Orleans, Louisiana, Abstract 7F.

23. Eichhubl P., Laubach S.E., Hooker J.N., **Fall A.**, (2009): 10^{-19} s^{-1}, Eos Trans. AGU, Fall Meet. Suppl., Abstract T41E-02.

22. **Fall A.**, Eichhubl P., Becker S.P., Bodnar R.J., Laubach S.E. (2009): Tracking fluid evolution using fluid inclusions in synkinematic fracture cements: Piceance Basin, Colorado. Geological Society of America, Abstracts with Programs, v. 41, No. 7, p. 255.

21. *Extended:* **Fall A.**, Rimstidt J.D., Bodnar R.J. (2009): The influence of fluid inclusion size on homogenization temperatures of homogeneously trapped inclusions. 20th European Current Research on Fluid Inclusions, Granada, Spain. Abstract v., p. 81-82.

20. Becker S.P., Hooker J.N., Eichhubl P., Laubach S.E., Lander R.H., Bonnell L.M., Reed R.M., **Fall A.** (2009): History of fracture development and diagenesis in Piceance Basin tight gas reservoirs: insights from fluid inclusion and fracture scaling analyses. AAPG Annual Meeting, Denver, Colorado. Abstract v.

19. **Fall A.**, Ziemann M.A., Bodnar R.J. (2008): Combined microthermometric and Raman technique for determination of salinity of H_2O-CO_2-NaCl fluid inclusions. 9th Pan-American Current Research on Fluid Inclusions 2008, Reston, Virginia, USA. Abstract v., p. 26.

18. **Fall A.**, Reynolds T.J., Bodnar R.J. (2008): How precisely can the temperature of a geological event be constrained using fluid inclusions? 9th Pan-American Current Research on Fluid Inclusions 2008, Reston, Virginia, USA. Abstract v., p. 27.

17. **Fall A.**, Ziemann M.A., Bodnar R.J. (2008): Experimental determination of salinity of H_2O-CO_2-NaCl fluid inclusions. Goldschmidt 2008 Conference, Vancouver, Canada. Geochim Cosmochim. Acta 72 (12), Suppl. 1, p. A252.

16. Bodnar R.J., Azbej T., Becker S. P., Cannatelli C., **Fall A.**, Hole J.A., Severs M.J. (2008): The whole Earth geohydrologic cycle. Goldschmidt 2008 Conference, Vancouver, Canada. Geochim Cosmochim. Acta 72 (12), Suppl. 1, p. A91.

15. *Extended:* **Fall A.**, Reynolds T.J., Bodnar R.J. (2007) Precision of thermal history reconstruction with fluid inclusions. 19th European Current Research on Fluid Inclusions, Bern, Switzerland. Abstract v., p. 136.

14. Bodnar R.J., Azbej T., Becker S. P., Cannatelli C., **Fall A.**, Hole J.A., King S., Severs M.J. (2006): The whole Earth geohydrologic cycle. MSA Short Course on Water in Nominally Anhydrous Minerals, Verbania, Italy, Abstract v.

13. Bodnar R.J., Azbej T., Becker S.P., Cannatelli C., **Fall A.**, Hole J. A., King S., Severs M.J. (2006): The Geohydrologic Cycle. 11th International Conference on Experimental Mineralogy, Petrology and Geochemistry, Bristol, UK, Abstract v., p. 9.

12. Bodnar R.J., Azbej T., Becker S.P., Cannatelli C., **Fall A.**, Hole J.A., Severs M.J. (2006): Earth: the water planet. Eos Trans. AGU, 87(36), Jt. Assem. Suppl., Abstract U23A-01.

11. **Fall A.**, Bodnar R.J., Szabó Cs. (2005): Nepheline syenites and related magmatic fluids in the Ditrău Alkaline Massif, Transylvania, Romania. Gordon Research Conference on Inorganic Geochemistry, Andover, NH.

10. **Fall A.**, Bodnar R.J., Szabó Cs. (2005): Fluid evolution in the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania. 18th European Current Research on Fluid Inclusions, Siena, Italy. Abstract v.

9. **Fall A.**, Bodnar R.J., Szabó Cs. (2004): Fluid evolution in the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania. Eos Trans. AGU, 85(47), Fall Meet. Suppl., Abstract V31A, F1820.

8. *Extended:* Bajkay P., **Fall A.**, Szabó Cs., Török K. (2003) Fluid inclusion study in fracture filling materials in granitoid rocks, Mecsek mountain, South Hungary, 17th European Current Research on Fluid Inclusions, Acta Min.-Petrograph., Abstract Series 2, p. 15.

7. *Extended:* **Fall A.**, Szabó Cs., Török K. (2003): The role of fluids in post-solidus transformation in the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania, 17th European Current Research on Fluid Inclusions, Acta Min.-Petrograph., Abstract Series 2, p. 65.

6. **Fall A,** Szabó Cs. (2002): Fluid inclusions in nepheline: the role of the fluids in the petrologic evolution of the nepheline syenites of the Ditrău Alkaline Massif, GEO 2002 Conference – Bucharest, Abstract v.

5. Márton I., Gál J., Benő É., **Fall A.**, Szabó Cs. Török ,K., Gál Á. (2001): Fluid inclusions in apatite, quartz and nepheline of the Ditrău Alkaline Massif, Transylvania, Romania. Mitt. Österr. Miner. Ges. 146, p. 186-188., Vienna, Austria.

4. *Extended:* Márton I., Gál J., Benő É., **Fall A.**, Szabó Cs. Török K., Gál Á. (2001): Fluid inclusion in apatite, quartz and nepheline of the Ditrău Alkaline Massif, Transylvania (Romania). 16th European Current Research on Fluid Inclusions, Porto, Portugal, Memória no.7, p. 291-293.

3. **Fall A.**, Benő É., Gál J., Márton I (2001): Fluid inclusion study in apatite, quartz and nepheline from the Ditrău Alkaline Massif (Eastern Carpathians, Transylvania, Romania), 17th Hungarian Young Earth Scientists Conference, organized by the Hungarian Geological and the Hungarian Geophysical Societies, Győr, Hungary, Abstract v.

2. Gál J., Márton I., **Fall A.**, Benő É. (2001): Fluid inclusion study from the Ditrău Alkaline Massif (Eastern Carpathians, Transylvania, Romania). 2nd National Scientific Conference of Geological Students from Romania, Cluj-Napoca, Romania, Abstract v., p. 28.

1. **Fall A.**, Benő É., Gál J., Márton I. (2000): Fluid inclusion study from the Ditrău Alkaline Massif (Eastern Carpathians, Transylvania, Romania), 3rd National Scientific Conference of Students from Transylvania, Cluj-Napoca, Abstract v., p.85.

Contract and project reports

19. **Fall, A.** (2025) Fracture petrography and fluid inclusion assessment, Vaca Muerta Fm., Argentina. FRAC-YPF Argentina collaborative case study, 37 p.

18. **Fall., A.** (2025) Hydrothermal alteration in the Barra Velha Formation, Santos Basin, offshore Brazil: a fluid inclusion assessment. FRAC-Petrobras collaborative case study, 44 p.

17. Ukar E., **Fall A.** (2023) Timing and mechanisms of bed-parallel vein (BPV) opening and cementation: Insights from SEM-CL, Montney Formation, Canada. FRAC-ConocoPhillips collaboration. 68 p.

16. Elliott S., **Fall A.**, Eichhubl P. (2021) SEM petrographic, fluid inclusion, and stable isotopic analysis of cataclastic zones in Zistersdorf, Gösting, and Harrersdorf nappes, Rhenodanubic Flysch reservoir, Vienna Basin, Austria, FRAC-OMV Collaboration, 16 p.

15. Ukar E., Elliott S., **Fall A.** (2021) Mineralogical composition of DMW4 core sandstones at 135 and 175 ft depth, Devine, Texas, 11 p.

14. Ukar E., **Fall A.**, Elliott, S. (2020) Structural-diagenetic and fluid inclusion characterization of tight-gas sandstones, Kuqa foreland basin, China. FRAC-PetroChina Collaboration, 136 p. slides report.

13. **Fall A**., Ukar, E. (2020) Sub-salt carbonates and intrusions, offshore Brazil – Fracture cement petrography and fluid inclusion observations, FRAC-Petrobras Collaboration, 28 p.

12. **Fall A.**, (2019) Fracture cement petrography and fluid inclusion analysis, Boxwood 55-1-12 Unit 5PH, Wolfcamp Formation, Delaware Basin, West Texas, FRAC-Anadarko (Oxy) Collaboration, 19 p.

11. Forstner S., **Fall A.** (2018), Fracture cement petrography and fluid inclusion assessment – Wolfcamp Formation, Delaware Basin, West Texas, FRAC-Devon Energy collaboration, 23 p.

10. Fu Q. Baques V., Ukar E., Forstner S., **Fall A.**, Loucks R., Zeng H., Ning C., Sivila L.., Laubach S.E. (2017) Formation mechanism of paleokarst in the Ordovician carbonates in the Halahatang area, Tarim Basin, China, 169 p.

9. Forstner S., **Fall A.**, Ukar, E. (2016) Fracture cement petrography and fluid inclusion assessment – Wolfcamp Formation, Delaware Basin, West Texas, FRAC-Devon Energy collaboration, 38 p.

8. Forstner S., **Fall A.** (2016) Fracture cement petrography and fluid inclusion assessment, Frontier Formation, Wyoming, FRAC-ConocoPhillips collaboration, 14 p.

7. **Fall A.**, Laubach, S.E., Elliott, S. Ukar, E. (2015) Fractures in Devonian sandstone reservoirs, Subandean fold and thrust belt, Northern Bolivia, FRAC-TOTAL collaboration, 57 p.

6. **Fall A.**, Eichhubl P. (2014) Fracture cement petrography and fluid inclusion assessment, Vaca Muerta Formation, Argentina, FRAC-SHELL collaboration, 10 p.

5. **Fall A.**, Eichhubl P. (2014) Fracture cement petrography and fluid inclusion assessment, Niobrara Formation, Colorado, FRAC-SHELL collaboration, 22 p.

4. Eichhubl P., Black K., **Fall A.** (2012) Fracture cement petrography and fluid inclusion analysis, Niobrara Formation, FRAC-Anadarko collaboration, 49 p.

3. **Fall A.**, Eichhubl P., Laubach S.E., Davis J.S. (2011) ExxonMobil—BEG Collaborative on Unconventional Reservoirs, Task 3: Natural fracture opening history in the Piceance Creek Field, Piceance Basin, Colorado: fracture cement petrography and fluid inclusion analysis. Project Year 3, Final Report prepared for ExxonMobil, 90 p.

2. Eichhubl P., **Fall A.**, Davis J. S., Laubach S.E. (2010) ExxonMobil—BEG Collaborative on Unconventional Reservoirs, Task 3: Fracture petrography and fluid inclusion analyses: The University of Texas at Austin, Bureau of Economic Geology, Project Year 2, Report 23 prepared for ExxonMobil, 30 p.

1. Laubach S.E., Eichhubl P., **Fall A.**, Hooker J.N., Davis J.S. (2009) ExxonMobil—BEG Collaborative on Unconventional Reservoirs, Task 3: Understanding the importance of natural fractures, stress sensitivity, and hydraulic/natural fracture interaction, Project Year 1: The University of Texas at Austin, Bureau of Economic Geology, Project Year 1, Report 13 prepared for ExxonMobil, 25 p.

Theses and Dissertation

4. **Fall A.** (2008): Applications of fluid inclusions in geological thermometry, Department of Geosciences, Virginia Tech (Ph.D. dissertation, 109 p.).

3. **Fall A.** (2005): Fluid evolution in the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania. Department of Geosciences, Virginia Tech (M.S. thesis, 39 p.).

2. **Fall A.** (2002): Fluid inclusions in nepheline: the role of the fluids in the petrologic evolution of the nepheline syenites of the Ditrău Alkaline Massif, Romania. Department of Mineralogy, University of Bucharest, Romania (M.S. thesis, in Romanian, 38 p.).
1. **Fall A.** (2001): Genesis of nepheline, cancrinite and sodalite based on microthermometry of fluid inclusions in nepheline from the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania. Department of Geology, Babeş-Bolyai University, Cluj-Napoca, (B.S. thesis, in Hungarian), 48 p.

Lectures and Addresses

Nine invited national and international talks

Not listed separately: 1-3 lectures per year presented at the Fracture Research and Application Consortium's Annual Meetings (since 2009).

47. Nickel-enhanced hydrogen generation during low-temperature serpentinization: insights from synthetic fluid inclusion microreactors. GSA Connects, San Antonio, Texas. October 2025.

46. The healing power of Faden quartz. 15th Pan-American Current Research on Fluid Inclusions Conference, Edmonton, Canada, Virtual presentation, September 3, 2022.

45. **Invited**: Applications of fluid inclusions in structural diagenesis. GAC-MAC Virtual Short Course on Fluid and Melt Inclusions: Applications to Geologic Processes, GAC-MAC Joint Annual Meeting, London, Canada, October 30-31, 2021.

44. **Invited keynote:** Paleofluid evolution in the Wolfcamp Formation, Permian Delaware Basin, West Texas. E-CROFI (26th European Current Research on Fluid Inclusions) Virtual presentation, June 30, 2021.

43. **Invited keynote:** Rock deformation at the interaction of mechanical and geochemical processes in sedimentary basins. Mining, Metallurgy, and Earth Sciences Conference, Transylvanian Museum Association, Cluj-Napoca, Romania, Virtual, In Hungarian, May 8, 2021.

42. **Invited:** Using Fluid Inclusions in Structural Diagenesis. Petrobras, Brazil; Virtual Talk. August 2020.

41. **Invited:** Department seminar lecture: Unraveling structural diagenetic processes in sedimentary basins using fluid inclusions. Department of Petrology and Geochemistry, Institute of Earth Sciences, Eötvös University, Budapest, Hungary. Virtual Talk, June 2020.

40. Paleotemperature constraints of calcite fracture cementation in shale: a comparison of fluid inclusion and carbonate clumped isotope thermometry. 25th European Current Research on Fluid Inclusions, Budapest, Hungary, June 23-27, 2019.

39. Constraining the history of fluid events using the fluid inclusion assemblage (FIA) method for collecting, displaying and interpreting microthermometric data. 14th Pan-American Current Research on Fluid Inclusions Conference, Rice University, Houston, Texas, June 12, 2018.

38. Constraining the history of fluid events using the fluid inclusion assemblage (FIA) method for collecting, displaying and interpreting microthermometric data. Bureau of Economic Geology Seminar Series, Jackson School of Geosciences, The University of Texas at Austin, April 6, 2018.

37. Combined effects of overpressure and bed-parallel contraction on the formation of bed-parallel and vertical fractures in the Vaca Muerta formation, Argentina. GSA Annual Meeting, Seattle Washington, October 24, 2017.

36. Bed-parallel beef veins and cross-cutting vertical fractures in the Vaca Muerta Formation, Argentina: a fracture opening and cementation history. 24th European Current Research on Fluid Inclusions, Nancy, France, June 29, 2017.

35. **Invited:** Processes and timing of natural hydraulic fracture opening and cementation in deeply buried sandstones, ConocoPhillips, Houston, Texas, May 3, 2016.

34. Dauphiné twin planes in quartz trap fluid inclusions and indicate paleostress in deeply buried sandstones, 23rd European Current Research on Fluid Inclusions, Leeds, United Kingdom, 29 June, 2015.

33. **Invited:** Natural hydraulic fracturing: processes and timing of fracture opening and cementation in deeply buried sandstones, Royal School of Mines, Imperial College London, United Kingdom, 25 June, 2015.

32. Propagation rate and timing of natural fractures in deep reservoirs, presented at GSA Annual Meeting, Vancouver, British Colombia, Canada, October 20, 2014.

31. **Invited:** Timing and processes of fracture formation in tight-gas sandstone reservoirs, BHP Billiton, Houston, Texas, 13 May, 2014.

30. **Invited:** Natural hydraulic fracturing of tight-gas sandstone reservoirs, Workshop on Unconventional Energy, The University of Texas at Austin, 4 September, 2013.

29. Timing and processes of fracture formation in tight-gas sandstone reservoirs using fluid inclusions, Unconventional Resources Technology Conference (URTeC) Denver, Colorado, 12-14 August, 2013.

28. A history of natural fracture propagation in deep gas reservoirs using fluid inclusions. 22nd European Current Research on Fluid Inclusions, Antalya, Turkey, 4-9 June, 2013.

27. A 48 m.y. history of fracture propagation. AAPG Annual Convention and Exhibition, Pittsburgh, Pennsylvania, 19-22 May, 2013.

26. A chronicle of natural fracture propagation using fluid inclusions. 47th South-Central Section Annual GSA Meeting, Austin, Texas, 4-5 April, 2013.

25. Timing and duration of gas charge-driven fracturing in tight-gas sandstone reservoirs based on fluid inclusion observations: Piceance Basin, Colorado. AGU Fall Meeting, San Francisco, 3-7 December, 2012.

24. **Invited:** Opening-mode fracturing and cementation during hydrocarbon generation in mudrocks: an example from the Barnett Shale, West Texas. Goldschmidt Conference, Montréal, Québec, Canada, 24-29 June, 2012.

23. Diagenetic controls on carbonate fracture cementation in tight-gas sandstones. 11th Pan-American Current Research on Fluid Inclusions 2012, Windsor, Ontario, Canada, 18-20 June, 2012.

22. Assessment of pore fluid pressure history in basin-centered gas accumulations using fluid inclusions, presented at the Goldschmidt Conference, Prague, Czech Republic, 14-19 August, 2011.

21. Coupled pore fluid pressure oscillation and natural fracture opening in tight-gas sandstone reservoirs: Piceance Basin, Colorado, USA, presented at the 21st European Current Research on Fluid Inclusions Conference, Leoben, Austria, 9-11 August, 2011.

20. Natural fracture opening and cementation in tight-gas reservoirs, Unconventional Resources Conference ConocoPhillips-Schlumberger, Houston, Texas, 9 May, 2011.

19. Testing the basin-centered gas model using fluid inclusion observations, AAPG Annual Convention and Exhibition, Houston, Texas, 13 April, 2011.

18. Crack-seal cementation of natural fractures recording pore-fluid evolution in tight-gas sandstones and shales, Fracture Research and Applications Consortium Annual Meeting, Austin, Texas, 23 September, 2010.

17. Crack-seal cementation of natural fractures recording pore-fluid evolution in tight-gas sandstone reservoirs, 20th General Meeting of the International Mineralogical Association, Budapest, Hungary, 21-27 August, 2010.

16. Pore fluid evolution in tight-gas sandstone reservoirs based on crack-seal cementation of natural fractures, presented at the 10th Pan-America Current Research on Fluid Inclusions, Las Vegas, Nevada, 10 June, 2010.

15. Fluid inclusion insights into the opening history of synkinematically cemented fractures: Mamm Creek results, Piceance Basin, Colorado, presented at EnCana Oil & Gas, Denver, Colorado, 21 January, 2010.

14. Fluid inclusion insights into the opening history of synkinematically cemented fractures: Piceance Basin results, Fracture Research and Applications Consortium Annual Meeting, Austin, Texas, 21 November, 2009.

13. Tracking fluid evolution using fluid inclusions in synkinematic fracture cements: Piceance Basin, Colorado: presented at GSA Annual Meeting, Portland, Oregon, 19 October, 2009.

12. Thermal history reconstruction: How precisely can the temperature of a geological event be constrained using fluid inclusions?: presented at BEG weekly seminar, Austin, Texas, June 2008.

11. Combined microthermometric and Raman technique for determination of salinity of H_2O-CO_2-NaCl fluid inclusions: presented at 9th Pan-America Current Research on Fluid Inclusions, Reston, Virginia, June 2008.

10. How precisely can the temperature of a geological event be constrained using fluid inclusions?: presented at 9th Pan-America Current Research on Fluid Inclusions, Reston, Virginia, June 2008.

9. Precision of thermal history reconstruction with fluid inclusions: presented at 19th European Current Research on Fluid Inclusions, Bern, Switzerland, July 2007.

8. Nepheline syenites and related magmatic fluids in the Ditrău Alkaline Massif, Transylvania, Romania, Andover, NH: presented at Gordon Research Conference on Inorganic Geochemistry, Andover, New Hampshire, August 2005.

7. Fluid evolution in the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania: presented at 18th European Current Research on Fluid Inclusions, Siena, Italy, July 2005.

6. Fluid evolution in the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania: presented at American Geophysical Union Fall Meeting, San Francisco, California, December 2004.

5. The role of fluids in post-solidus transformation in the nepheline syenites of the Ditrău Alkaline Massif, Transylvania, Romania: presented at 17th European Current Research on Fluid Inclusions, Budapest, Hungary, June 2003.

4. Fluid inclusions in nepheline: the role of the fluids in the petrologic evolution of the nepheline syenites of the Ditrău Alkaline Massif: presented at GEO 2002 Conference, The University of Bucharest, Bucharest, Romania, October 2002.

3. The role of Antal Koch in understanding the Ditrău syenite massif: presented at In Memoriam Koch-Szentpétery Conference, organized by the Bolyai-Society, Cluj-Napoca, Romania, February 2002.

2. Fluid inclusions in apatite, quartz and nepheline of the Ditrău Alkaline Massif, Transylvania: presented at MINPET Conference - Annual Meeting of the Austrian Mineralogical Association (ÖMG), Vienna, Austria, September 2001.

1. Fluid inclusion study in apatite, quartz and nepheline from the Ditrău Alkaline Massif (Eastern Carpathians, Transylvania, Romania): presented at 17th Hungarian Young Earth Scientists Conference, organized by the Hungarian Geological and the Hungarian Geophysical Societies, Győr, Hungary, April 2001.