

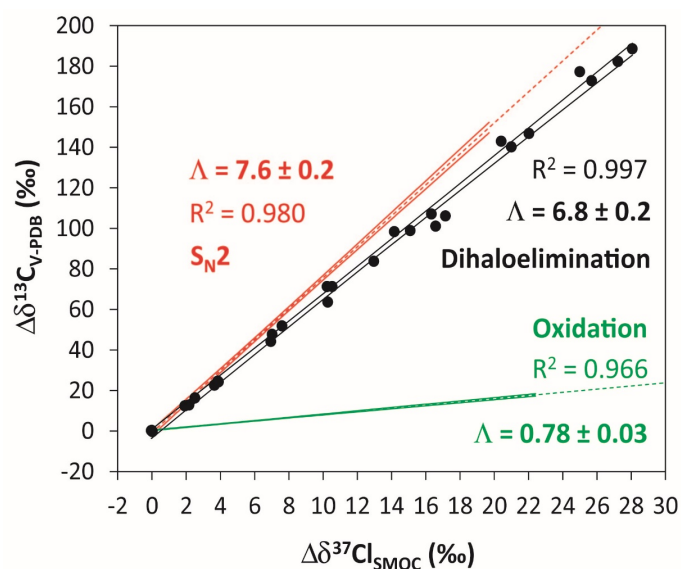


Dr. Orfan Shouakar-Stash

- Director, Isotope Tracer Technologies Inc.
- Adjunct Professor, School of Engineering, University of Guelph.
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Dr. Shouakar-Stash is an Isotope Hydrogeochemist with over 20 years of experience. He is an Adjunct Professor at the School of Engineering, University of Guelph. He is also an Adjunct Professor at the Department of Earth and Environmental Sciences, University of Waterloo.

His research interest relates to the development and implementation of isotopic tools in organic and inorganic contaminant investigations and water resource as well as water quality studies. He developed numerous isotopic technical methodologies and initiated and participated in a number of international and domestic collaboration research projects with researchers from various universities, government agencies and industries across the globe.



He authored and co-authored an extensive number of scientific papers in international journals. He trained and supervised a large number of undergraduate and graduate students as well as visiting scientists. He serves as a peer reviewer in several international Journals. He currently serves as the secretary of the International Association of Geochemistry and Cosmochemistry (IAGC).

Dr. Shouakar-Stash is the CEO of Isotope Tracer Technologies Inc. (IT²), the only commercial Isotope Laboratory in Canada. IT² is a state-of-the-art facility that offers a large variety of isotopic analyses on different materials.

Selected Papers and Theses

Selected Publications

Blázquez-Pallí, N., Shouakar-Stash, O., Palau, J., Trueba-Santiso, A., Varias, J., Bosch, M., Soler, A., Vicent, T., Marco-Urrea, E., Rosell, M. (2019). Use of dual element isotope analysis and microcosm studies to determine the origin and potential anaerobic biodegradation of dichloromethane in two multi-contaminated aquifers. *Science of the Total Environment*. 696:134066.

Lihl, C. Renpenning, J., Kümmel, S., Gelman, F., Schürner, H.K.V., Daubmeier, M., Heckel, B., Melsbach, A., Bernstein, A., Shouakar-Stash, O., Gehre, M., Elsner, M. (2019). Toward Improved Accuracy in Chlorine Isotope Analysis: Synthesis Routes for In-House Standards and Characterization via Complementary Mass Spectrometry Methods. 12290-12297. Epub 2019 Sep 17.

Rosell, M., Palau, J., Mortan, S. H., Caminal, G., Soler, A., Shouakar-Stash, O., and MarcoUrrea, E. (2019). Dual carbon-chlorine isotope fractionation during dichloroelimination of 1, 1, 1, 2-trichloroethane by an enrichment culture containing Dehalogenimonas sp. *Science of The Total Environment*. 648, 422-429..

Richard, L., Pinti, D.L., Hélie, J.-F., López Hernández, A., Shibata, T., Castro, M.C., Sano, Y., Shouakar-Stash, O., and Sandoval, F. (2019). Variability of deep carbon sources in Mexican geothermal fluids. *Journal of Volcanology and Geothermal Research*. Vol. 370, (15), 1-12.

Chen, G., Shouakar-Stash, O., Phillips, E., Justicia-Leon, S. D., Gilevska, T., Sherwood Lollar, B., Mack, E. E., Seger, E. s., and Löffler, F. E. (2018). Dual Carbon–Chlorine Isotope Analysis Indicates Distinct Anaerobic Dichloromethane Degradation Pathways in Two Members of Peptococcaceae. *Environmental Environmental science & technology* 52 (15), 8607-8616.

Wen, T., Pinti, D. L., Castro, M. C., López-Hernández, A., Hall, C. M., Shouakar-Stash, O., and Sandoval-Medina, F. (2018). A noble gas and ⁸⁷Sr/⁸⁶Sr study in fluids of the Los Azufres geothermal field, Mexico—Assessing impact of exploitation and constraining heat sources. *Chemical Geology* 483, 426-441.

Chen, L., Shouakar-Stash, O., Ma, T., Wang, C., Liu, L. (2018). Significance of stable carbon and bromine isotopes in the source identification of PBDEs. *Chemosphere* 186, 160-166.

Heckel, B., Cretnik, S., Kliegman, S., Shouakar-Stash, O., McNeill, K., and Elsner, M. (2017). Reductive outer-sphere single electron transfer is an exception rather than the rule in natural and engineered chlorinated ethene dehalogenation. *Environmental Science & Technology* 51 (17), 9663-9673.

Marchesia, M., Albertia, L., Shouakar-Stash, O., Pietrinia, I., de Ferrad, F., Carpanid, G., Aravena, R., Franzettie, A., and Stellae, T. (2017). ³⁷Cl-compound specific isotope analysis and assessment of functional genes for monitoring monochlorobenzene (MCB) biodegradation under aerobic conditions. *Science of the Total Environment*.

Palau, J., Shouakar-Stash, O., Mortan, S. H., Yu, R., Rosell, M., Marco-Urrea, E., Freedman, D. L., Aravena, R., Soler, A., and Hunkeler, D. (2017). Hydrogen isotope fractionation during biodegradation of 1,2-dichloroethane: potential for pathway identification using a multi-element (C, Cl and H) isotope approach. *Environmental Science and Technology*. 51(18).

Kashir, M., McGregor, R., Gusti, W., and Shouakar-Stash, O. (2017) Chemical oxidation using stabilized hydrogen peroxide in high temperature, saline groundwater impacted with hydrocarbons and MTBE. *Remediation Journal* 27(4):19-28.

Doğan-Subaşı, E., Elsner, M., Qiu, S., Cretnik, S., Atashgahi, S., Shouakar-Stash, O., Boon, N., Dejonghe, W., and Bastiaens, L. (2017) Contrasting dual (C, Cl) isotope fractionation offers potential to distinguish reductive chloroethene transformation from breakdown by permanganate. *Science of the Total Environment* 596–597: 169–77.

Recent Theses (2017-2020)

Waleed Saeed (PhD Thesis) Determining the Source of Brine in the Discharge Zone of Rub al Khali Basin: A Case Study of Sabkha Matti.

Waleed Gusti (MSc Thesis) The Effectiveness of Persulfate and Hydrogen peroxide in the Oxidation of Hydrocarbon Contaminants At 300C: A Study with Focus on the Performance of Compound Specific Isotope Analysis.

Fatemeh Vakili (PhD Thesis) Stable isotope fractionation of chlorinated ethenes associated with physical processes.