

Lecture Abstract:

“The “Stable Isotopes” Lecture”

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The stable isotope compositions of oxygen and to a lesser extent also of carbon are the most widely used proxies in speleothem research and the relevant analytical techniques are well established.

This lecture will focus on the practical aspects of stable isotope analysis of speleothems and the following topics are planned:

- Principles of mass spec analytics
- Strategies of how to sample speleothems
- Temporal and spatial resolution
- Reproducibility of isotope profiles
- Hendy test
- Future developments

A short reading list:

Dorale, J.A., Liu, Z. (2009): Limitations of Hendy test criteria in judging the paleoclimatic suitability of speleothems and the need for replication. - *J. Cave Karst Studies*, 71, 73-80.

Fairchild, I.J., Smith, C.L., Baker, A., Fuller, L.M., Spötl, C., Matthey, D., McDermott, F., EIMF (2006): Modification and preservation of environmental signals in speleothems. – *Earth-Science Reviews*, 75, 105-153.

Spötl, C., Matthey, D. (2006): Stable isotope microsampling of speleothems: a comparison of drill, micromill and laser ablation techniques. – *Chemical Geology*, 235, 48-58.

Students who want to refresh their background in stable isotope geochemistry prior to the course are recommended to consult e.g. Sharp, *Principles of Stable Isotope Geochemistry* (2007).

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