# The *SpinDrops Learning Environment…*


## … on $^{1}$H NMR spectroscopy!

Inside the *SpinDrops* software, there is now a new learning environment on the basics of $^{1}$H NMR spectroscopy based on learning psychology and science education principles! It makes use of **interactive simulations, visualizations, and learning support** while explaining the precession movement, **the chemical shift (signal position), and the basics of coupling (signal structure)** in an innovative, clear, and vivid way.

Learn about the theoretical backgrounds and implications on a spectrum to afterwards interpret them more easily in just about **60-75 minutes** of learning time! The „SDLE“ is available in German and English and for Windows, macOS, and Linux, free of charge!

Note: The SDLE has already been empirically evaluated with students from TU Munich and has been proven to be exciting, user-friendly, and very conducive to learning! *

Scan the QR code to directly download the SDLE and start to learn the basics of $^{1}$H NMR spectroscopy together with the installation guide!

Any questions?
Dr. Dominik Diermann, dominik.diermann@tum.de
More about SpinDrops: www.spindrops.org

* Diermann, D., Huber, D., Glaser, S. J., & Koenen, J. (2024). A Digital and Interactive Tool to Learn $^{1}$H NMR Spectroscopy: The SpinDrops Learning Environment. *Journal of Chemical Education*. *101*(8), 3202–3215. https://doi.org/10.1021/acs.jchemed.4c00151

Direct link to the English version:
https://github.com/denhub97/SpinDrops-LE/releases/tag/2.1.0-beta31

Direct link to the German version:
https://github.com/denhub97/SpinDrops-LE/releases/tag/2.1.0-beta31-ger

Within *SpinDrops,* the learning environment can be started under the "View" tab and then "Learning Environment..." tab (in German "Fenster" and "Lernumgebung...").

Under this tab, the interactive visualizations (local magnetic field and chemical shift and coupling trees) can also be used outside the learning environment. Under "Pulse Sequence" and there "90°-Acq", the realistically simulated ppm spectrum can also be displayed, which dynamically adapts to the set spin system (tab "Spin System" and there "Parameter...").