



### SABRE-SHEATH

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**Field strength:** 8.5 T

### Why is this your favorite spectrum?

This is the first SABRE-SHEATH spectrum. This acronym stands for Signal Amplification By Reversible Exchange in SHield Enables Alignment Transfer to Heteronuclei. The spin dynamics at specific level anti-crossings in very low fields of a few mG allow for hyperpolarization transfer from parahydrogen to substrates. In the image, the substrate of choice is  $^{15}\text{N}$ -pyridine. Parahydrogen is bubbled through a solution containing a polarization transfer catalyst (PTC) and the substrate. Both, parahydrogen and substrate, are in reversible exchange with the catalytic species. When the PTC is formed, J-couplings across the iridium center enable the polarization transfer in a magnetically shielded environment, where the magnetic fields are about 250 times smaller than Earth's field.