

PULSED ENDOR at 95 and 275 GHz.

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During the last decade a few groups, among those the Leiden group, have pioneered the potential of pulsed Electron Nuclear Double Resonance (ENDOR) spectroscopy beyond X-band microwave frequencies. The high EPR frequency implies an enhanced spectral resolution and absolute detection sensitivity, and the possibility to study paramagnetic centers not accessible at low frequencies. These advantages *ipso facto* apply to high-frequency ENDOR as well, which in addition provides

- an excellent nuclear-Zeeman resolution, facilitating or even enabling the analysis of ENDOR spectra and the assignment of ENDOR lines to different nuclei,
- accessibility to nuclei with small magnetic moments, and
- a nuclear sensitivity orders of magnitude better than for NMR, which is essential when working with tiny and/or valuable samples as is often the case in biology and nano-material science.

To illustrate these features, examples from our research will be discussed. These will include copper centres in proteins, semiconductors and nanoparticles.