

## **Macromolecular electron spin resonance spectroscopy**

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Our group focuses on the development and application of electron spin resonance (ESR) spectroscopy methods to elucidate membrane transport mechanisms.

We investigate the functional mechanism of heterooligomeric macromolecular protein complexes embedded in the membrane *in vitro* And *in situ* Conditions. We characterize the structural transitions, conformational equilibria, kinetic and thermodynamic parameters to understand the mechanistic basis of their function. In addition, we are developing new approaches to perform such experiments in native membranes and cellular environments. To achieve these objectives, we use an interdisciplinary approach that includes expression and purification of recombinant membrane proteins, biochemical/biophysical characterization and electron spin resonance (ESR) spectroscopy combined with structural modeling.

Our research is funded by the Emmy Noether Program and the DFG Collaborative Research Center 1507.