

Development and Applications of NMR Spectroscopy

» Prof. Dr. Stefan Berger

Keywords

- NMR Spectroscopy
- Protein-NMR
- Physical Organic Chemistry

The research group of Prof. Dr. Stefan Berger focuses its work on:

1. Protein-NMR for the generation of Protein-Structures. This includes application of all modern 3D NMR pulse sequences for fully ^{15}N and ^{13}C labelled proteins and structure calculation using recent protein structure programs.
2. Investigation of Protein-Ligand-interactions with Saturation Transfer Difference (STD)-NMR. The binding of small organic molecules and peptides with selected proteins is studied with the aim of mapping the binding epitope.
3. NMR-Diffusion measurements for the investigation of the dynamics of peptides and proteins. With this method the exchange behaviour of NH protons can be investigated.
4. Interaction between peptides and metal ions with HOESY-NMR. Here the binding of e. g. the Lithium ion with peptides is investigated.
5. Methodological development of selective NMR pulse sequences for the application in bioorganic chemistry.



Contact

Prof. Dr. Stefan Berger
Professur für Analytische Chemie

Fakultät für Chemie und
Mineralogie
Institut für Analytische Chemie
Linnéstr. 3
04103 Leipzig

fon +49 341 97-36101
fax +49 341 97-11833
stberger@rz.uni-leipzig.de
www.uni-leipzig.de/~nmr/STB

BRAND, T.; CABRITA, E. J.; MORRIS, G. A.; GÜNTHER, R.; HOFMANN, H.-J.; BERGER, S.
Residue-specific NH exchange rates studied by NMR diffusion experiments. *J. Magn. Reson.* 187 (2007), 97–104.

RAECK, C.; BERGER, S.
A 2D NMR method to study peptide phosphorylation. *Anal. Bioanal. Chem.* 389 (2007), 2161–2165.

BHAT, R. K.; BERGER, S.
The 5S Subunit of Transcarboxylase interacts with free Biotin as studied by transferred-NOESY and Saturation Transfer Difference NMR. *Protein & Peptide Letters* 15 (2008), 624–629.