Method Development for the Characterization of Polymers by TD-NMR Relaxometry

Master Thesis Opportunity

Join us in collaboration with **traceless® materials**, a pioneering company of fully home-compostable biopolymers made from agricultural by-products and help shape the sustainable materials of tomorrow! As traceless scales up the production of its bio-based polymer, an alternative to conventional plastics, ensuring consistent product quality is crucial. To support this mission, you will develop a novel analytical method to characterize key polymer properties.

Project Description

In this interdisciplinary Master's project, you will work closely with both the **Institute of Process Imaging (IPI)** and **traceless® materials**.
Your task will be to develop and optimize a **Time-Domain Nuclear Magnetic Resonance (TD-NMR)** method for polymer analysis. The developed method will then be validated at traceless using established materials-science characterization techniques.

Your Tasks

- Conduct literature research on TD-NMR methods for polymer analysis
- Develop and optimize TD-NMR measurement protocols
- Analyze relaxation data and extract polymer property indicators
- Validate TD-NMR results using standard material-science methods
- Correlate NMR results with polymer structure and quality parameters

Who You Are

- Enrolled in a Master's program in (Bio)Chemical Engineering, Materials Science, Physics, Chemistry, or related field
- Motivated to work at the interface of analytical technologies and polymer science
- Curious, proactive, and excited about sustainable solutions

Contact

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