

The Laboratory for Organic and Inorganic Chemistry

## **Final PhD Seminar**

Sunday, April 23<sup>rd</sup> at 9:30 in Hall 1

# Ms. Sally Nijem

### Diesendruck Group

On the Topic of:

## Mechanochemical production of small molecules

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#### Mechanochemical production of small molecules

Mechanochemistry has been part of human life since the stone age; for example, to prepare food and medicines using mortar and pestle. However, until the modern era, it was not important to distinguish the physical processes (size reduction, mixing) from the chemical changes. In the last century, mechanochemistry has been stablished as an interdisciplinary scientific field in which mechanically induced chemical changes are carried out and compared to other approaches to chemistry, such as thermal and photochemical.

This lecture will focus on novel strategies to use mechanical stimuli towards the production of small molecules from polymers or other molecules. First, I'll describe a strategy based on the design of new mechanophores, mechano-sensitive molecules which are inserted into polymeric chains, and upon stress, can release gas molecules. Then, I'll describe my work on mechano-synthesis, which is used to achieve and explain chemo-selectivity in a catalytic acylation reaction. All mechanochemical reactions described in this work were done using solvent-free ball milling.



### **References:**

S. Nijem, Y. Song, R. Schwarz, C. E. Diesendruck, Polym. Chem. 2022, 13, 398