

**ICB PhD public presentations**

# LIQUID PHASE CATALYTIC ETHANOL OXIDATION TO ACETIC ACID

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The van Bokhoven Group

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**HIT E 51, 14.00 h**

**Project Summary:** The catalytic oxidation of (bio)ethanol provides a sustainable alternative to produce acetic acid. Gold-based catalysts have shown the best activity, but large quantities of carbon dioxide are formed. Our project focuses on the holistic understanding of the reaction to develop an improved catalyst for future industrial implementation. This talk will summarize the milestones achieved. We started by developing a trickle flow system, which improves the catalyst stability, and shortens the reaction time making it industrially more relevant. The flow reactor development allowed for direct comparison of the liquid reaction with the gas-phase equivalent. The comparison proved that the ethanol to acetic acid is partially catalytic. The catalytic part is a dehydrogenation reaction, which led us to modified catalytic systems. We have further developed catalysts with improved activity and identified the significant role of the support in the reaction.

**CV:** Sotiria Mostrou received her BSc in Chemical Engineering from the Budapest University of Technology and Economics and her MSc in Process Engineering from ETH Zürich. In 2015, she joined the group of Prof. van Bokhoven, where she did her master thesis project and continued her PhD research.