

University of Groningen

## Catalytic conversion of glycerol to bio-based aromatics

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## **Propositions**

Accompanying the thesis

### **Catalytic conversion of glycerol to bio-based aromatics**

**Songbo He**

1. Compared to *in-situ* catalytic pyrolysis approach for biomass conversion, the *ex-situ* one shows considerable advantages. (Chapter 9)
2. The use of a fresh catalyst in a fixed-bed reactor leads to misunderstanding of process performance. (Chapters 2 and 3)
3. An appropriate binder promotes synergy between the multi-components of a formulated catalyst and thus improves catalyst performance. (Chapters 4, 5, and 8)
4. The impurities in biomass are not always harmful and purification before a catalytic reaction is thus not always necessary. (Chapters 6-8)
5. Evaluation of catalyst regenerability of zeolites that are prone to coking by multiple reaction-regeneration cycles is a necessity to be able to perform a sound techno-economic assesment. (Chapters 2-9)
6. Co-processing of biomass-based feedstocks with petroleum fractions has the potential to play an important role in the near future. (Progress in Energy and Combustion Science, 2018, 68, 29-64)
7. The excellent results reported by Varma *et al.* for the catalytic pyrolysis of glycerol are too good to be true, and are likely due to experimental flaws. (ACS Energy Letters, 2016, 1, 963-968)
8. The statement that the main task of academia is to challenge the boundaries of today's scientific knowledge is not correct. Industrial collaborations are very important and should not be neglected. (Nature Catalysis, 2021, 4, 186-192)
9. "More hard work lying ahead" is certainly valid when scaling up technology from lab to commercial scale. (Nature, 2022, 604, 242-245)
10. Thinking about scales is also very important when developing processes in the field of biomass conversions. (Joule, 2020, 4, 1357-1368)