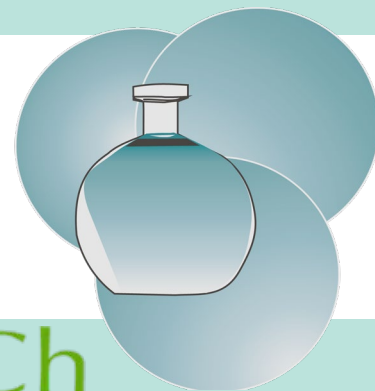


# Fakultät für Naturwissenschaften

# Institut für Chemie



lädt ein

gemeinsam mit der Gesellschaft  
Deutscher Chemiker  
zum

**Vortrag**  
von Herrn

**Prof. Georgios  
Kyriakou**

Department of Chemical  
Engineering

**University of Patras**

**GDCh**

Gesellschaft

Deutscher Chemiker

**“The hydrogenation of  
furfural over  
monometallic and  
single atom alloy  
catalysts based on Pd,  
Cu and other relevant  
metals“**

am: 06. Juni 2024

um: 16:00 Uhr

WO: im Raum 1/232

Die kleine Kaffeerrunde vor dem Vortrag beginnt  
um 15:30 Uhr im Raum 1/232.

Das Mitbringen von eigenen Trinkgefäßen ist  
erwünscht.

Gäste sind herzlich willkommen!

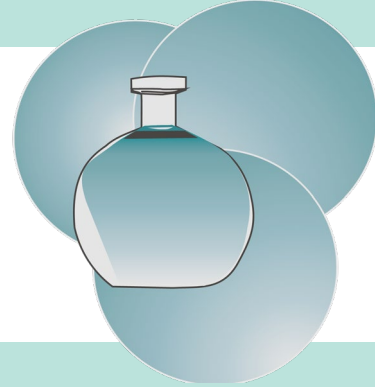


TECHNISCHE UNIVERSITÄT  
IN DER KULTURHAUPTSTADT EUROPAS  
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**Prof. Georgios  
Kyriakou**

Department of Chemical  
Engineering

**University of Patras**



**GDCh**  
Gesellschaft  
Deutscher Chemiker

**“The hydrogenation of furfural over monometallic and single atom alloy catalysts based on Pd, Cu and other relevant metals.”**

The production of fuels and chemicals from biomass upgrading has the potential to significantly reduce the global dependence on fossil sources for energy and raw materials. Of particular importance are catalytic processes aimed at the selective transformation of multifunctional organic molecules derived from biomass into value-added products and fuels. In this respect, furfural is an important platform chemical derived from biomass, which can be used as a chemical intermediate for the formation of a variety of useful products including added value hydrogenation products. Single Atom Catalysts (SACs) and more specifically Single Atom Alloys (SAAs) provide unique catalytic properties which allow for the selective control of surface catalytic reactions. In this seminar, the fundamental properties governing the reactivity of SAAs will be analyzed using model studies carried out on single crystal surfaces in ultra-high vacuum conditions. The selective hydrogenation of furfural in high pressure reactors over alumina supported atomically dispersed PdCu alloy catalysts will also be presented. Pd/Cu SAA catalysts were found to improve the conversion of furfural to furfuryl alcohol as compared to the corresponding monometallic ones as they combine the advantages of Cu catalysts (high selectivity) and Pd catalysts (high activity).