

# Task-specific ionic liquids and their group 10 transition metal coordination complexes for interface-enhanced catalysis

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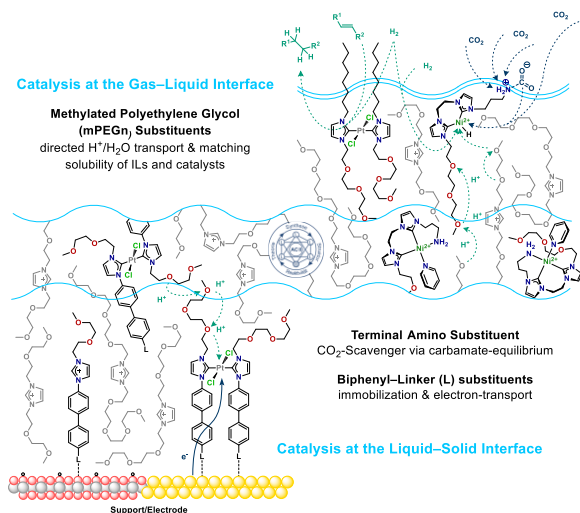
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*Interface-enhanced catalysis* aims at creating single catalytic sites at liquid interfaces. The focus is on dissolved molecular catalysts that show a pronounced preference to be located at the interfaces of ‘Supported Ionic Liquid Phase (SILP)’ systems. Our research target is to elucidate and exploit the specific reactivity located at both, the gas–liquid and the liquid–solid interface (Figure 1). Key incentive of our research is the incorporation of identical structural motifs in the ionic liquid and the ligand sphere of the applied group 10 transition metal catalysts. The analogously designed structural motifs will allow for control of solubility, interface proximity, and selective interaction. The individual catalysts are expected to (1) transport  $H^+/H_2O$ , (2) reductively produce  $H_2$ , and (3) catalytically hydrogenate unsaturated substrates, including olefins and  $CO_2$ .



**Figure 1:** Schematic representation of the tailored ligand design and *interface-enhanced catalysis*.

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