5th online GDCh Symposium @ Uni Regensburg

Monday 26. July 2021 per ZOOM

16.00 h Meeting of the Regensburg chapter of the German Chemical Society (GDCh) - for GDCh members only

16.15 h Prof. Christopher C. Cummins
Massachusetts Institute of Technology, USA

Anthracene as a Carrier for Unsaturated Phosphorus Functional Groups

Abstract:
Anthracene can be used as a two-electron platform to stabilize and carry reactive, unsaturated p-block element systems. Anthracene can be attached to trivalent phosphorus via its dianion to give RPA (A = C_{14}H_{10} or anthracene; R = e.g. NMe_{2}, OEt, Cl, H, ‘Bu) compounds. Such compounds can be used as phosphinidene sources via anthracene elimination. To be described is a new catalytic reaction for phosphinidene group transfer to styrenic olefins as a novel pathway to prepare three-membered ring phosphirane compounds. Anthracene has been used to stabilize and transfer the reactive P_2 and HCP molecules, enabling their “click reaction” with inorganic azide ion. Anthracene elimination has also provided a pathway to rare hydro(halo)phosphines en route to tri-tert-butylphosphatetrahedrane. Reactions of the latter that may take place via isomeric tri-tert-butylphosphacyclobutadiene will also be discussed. Anthracene-mediated phosphinidene transfer to the enone trans-chalcene underpins the synthesis of 2,5-diphenylphosphafuran (DPF), which undergoes a Diels-Alder reaction with ethylene at room temperature. Anthracene also carries mesitylphosphazide, enabling it to engage in 1,3-dipolar cycloaddition reactions.

ZOOM Link:
https://uni-regensburg.zoom.us/j/64119567471?pwd=bFNEdjE0a0VzcVNMTIs4b2x6a0VYQT09
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