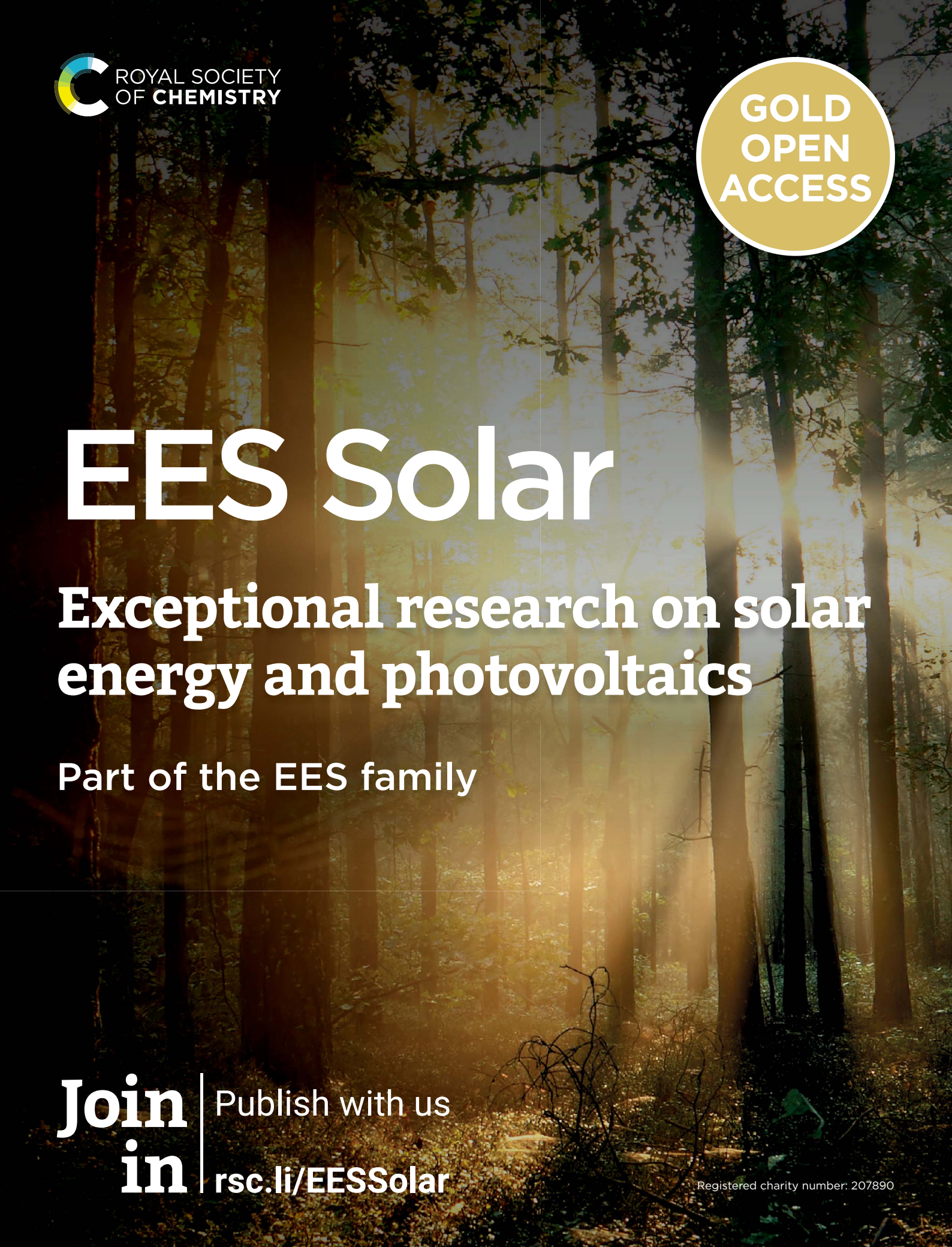
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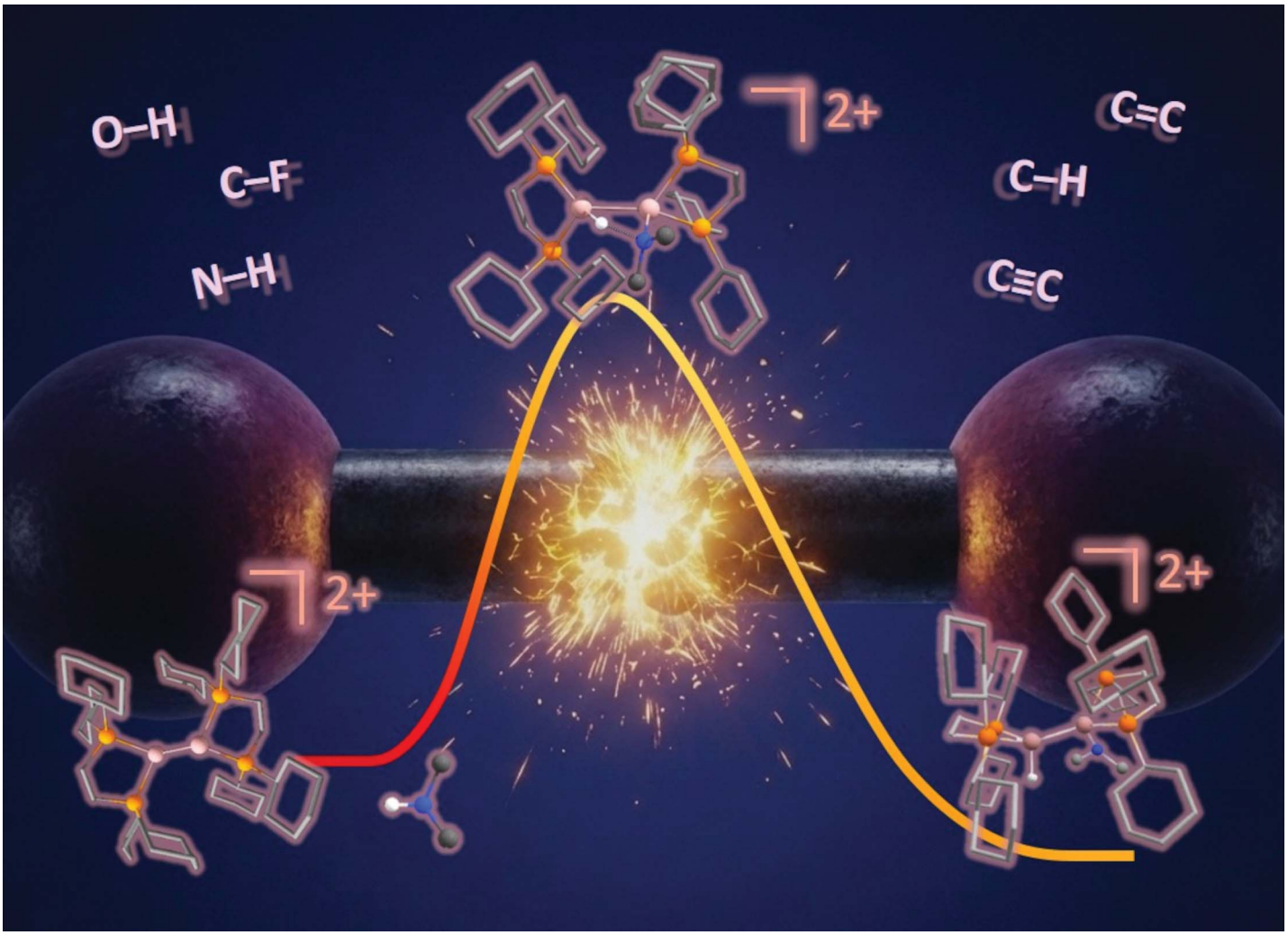

Showcasing research from Professor Krossing's laboratory, Department of Inorganic and Analytical Chemistry, University of Freiburg, Germany.

Why is a dicationic digallene so reactive towards activation of strong covalent bonds? Scope and mechanistic investigations

Neutral or *anionic*, subvalent main-group compounds obtained after multistep syntheses often undergo oxidative addition reactions, mimicking the reactivity of transition metals.

Here we demonstrate that a straight-forward and in-situ formed *cationic* subvalent main-group digallene undergoes oxidative addition reactions of even very strong covalent C-H, N-H, O-H and C-F bonds. Scope and mechanism were investigated with a wide range of substrates and using quantum chemical calculations. This is a promising step towards main-group catalysis, as cationic main-group complexes are more prone to reductive elimination than corresponding neutral compounds.

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