

# Science Days TCH 2025 Abstract Submission

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Institute: E163 - Institute of Applied Synthetic Chemistry

Category: PhD/Master student

If you chose the category "PostDoc", do you want to present a poster if you are not selected for a pitch presentation? Yes/No

If you chose the category "PhD/Master student", do you want to contribute with a pitch presentation in addition to your poster? Yes

## From Darkness to Base: The Breakthrough of Photobase Generators

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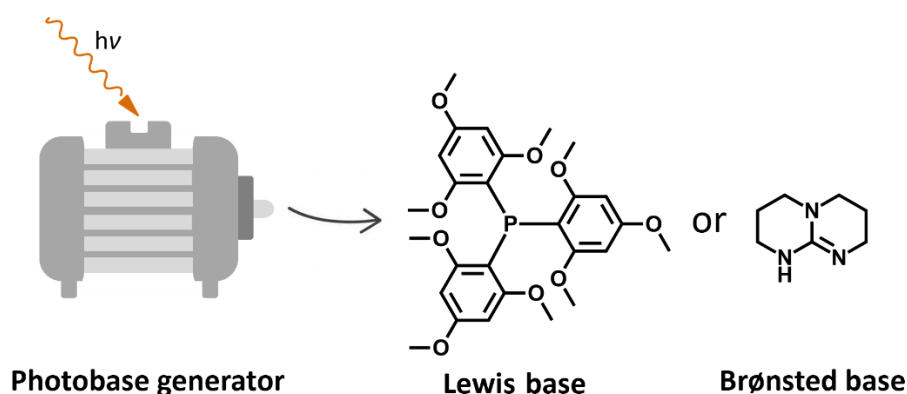


Figure 1. Graphical abstract

Photobase generators (PBGs), molecules that release bases upon light irradiation, have seen limited industrial application compared to the extensively studied radical photoinitiators and photoacid generators. However, PBGs offer distinct advantages, such as non-corrosiveness to metal substrates and oxygen insensitivity, which make them particularly attractive for use in Additive Manufacturing and coatings. These benefits also broaden the range of materials that can be produced *via* photopolymerization. Importantly, PBGs facilitate a variety of photo-induced step-growth polymerizations, including the cyclotrimerization of isocyanates and the polyaddition of hydroxyl groups to electrophilic alkenes. These reactions yield materials with valuable properties: isocyanate-based polyadditions yield tough, flame-retardant, high-performance polymers, while oxa-ene reactions provide a stable, odor-free alternative to conventional thiol-ene systems. This highlights the potential of PBGs as versatile and commercially viable photoinitiators.