

DUMMY / FICTIONAL PAPER — FOR DEMONSTRATION ONLY

Photosynthesis in Urban Microreactors: A Conceptual Framework for Distributed Carbon Capture

K. Urban, L. Reactor, M. Carbon

Abstract

DUMMY PAPER. We outline a hypothetical concept for scaled arrays of microreactors performing synthetic photosynthesis for distributed CO₂ capture in urban environments. This is speculative and non-actionable.

Note: This document contains fictional content created for demonstration; it is not real research and is not actionable.

Introduction

Synthetic photosynthesis aims to convert CO₂ and sunlight into chemical fuels. We sketch a conceptual system of microreactors integrated into building facades for distributed carbon capture.

Methods

Design considerations, theoretical conversion efficiencies, and an invented lifecycle assessment are summarized qualitatively. No operational protocols are provided.

Results

A back-of-envelope fictional analysis suggests that covering 10% of available facade area with idealized microreactors could sequester an imagined 0.5 Mt CO₂/year in a metropolitan region (fabricated numbers).

Discussion

This speculative piece is intended for brainstorming and should not be used as technical guidance. Real-world deployment requires engineering validation and regulatory review.

References

[1] R. Speculate, Urban Sustainability Journal, 2022.