



Submittal #014

REDUCING CO₂ EMISSIONS FROM CONCRETE: EMERGING APPROACHES

Abstract:

Two emerging approaches to reduce the CO₂ emissions of concrete are highlighted: novel supplementary cementitious materials (SCMs) and carbon mineralization. Novel SCMs, including “manufactured SCMs” are discussed and research needs for such materials are provided. An overview of various carbon mineralization strategies, such as carbonation curing during mixing, carbonation of recycled concrete aggregates, carbonation hardening/curing, and carbonation of SCMs/fillers is presented.

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Bio:

Prof. Prannoy Suraneni is Assistant Professor in the Civil and Architectural Engineering Department at the University of Miami since 2017 and the Miami Engineering Career Development Assistant Professor since 2022. He obtained his B.Tech., M.S., and Ph.D. degrees in Civil Engineering from IIT Madras, University of Illinois at Urbana-Champaign, and ETH Zurich, respectively. He heads the Advanced Cement Chemistry, Engineering, Sustainability, and Science Lab (ACCESS Lab) at the University of Miami. The major research objective of the lab is to make concrete infrastructure sustainable, durable, and resilient, through fundamental and applied research at multiple length and time scales. Dr. Suraneni has published 98 peer-reviewed international journal papers which have been cited \approx 3000 times. His research has been funded by NSF, NIST, DARPA, NCHRP, PCA, RMC Foundation, University of Miami, and others. In the last five years, he was awarded the UM College of Engineering David J. Sumanth Early Career Research Award, the RILEM Gustavo Colonnetti Medal, among other honors.