

STEEL & CEMENT MANUFACTURING INNOVATIONS TO ENABLE A LOW CARBON ECONOMY

## A Proposed Engineering Research Center (ERC) to the National Science Foundation,

underpinned by University-Industry Collaboration

SCIENCE ERC is motivated by the urgent need to address decarbonization of cement and steel manufacturing, which is responsible for 16% of all anthropogenic CO<sub>2</sub> emissions and accounts for a significant share of emissions associated with construction.

SCIENCE ERC aims to undertake fundamental and applied R&D that leverages knowledge and expertise from infrastructural materials industry to:



 Pioneer new technologies to eliminate carbon emissions from infrastructural materials manufacturing

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Develop novel infrastructure materials through waste upcycling and unique synthesis processes

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- Increase process energy-efficiency; use of renewable energy; electrification; and CCUS solutions
- Integrate models and Internet-of-things (IoT) platforms for infrastructure materials manufacturing
- Develop life-cycle and technoeconomic tools to ensure cost- and energy efficiency
- Train an efficient workforce for carbon-lean materials manufacturing

## INDUSTRY INVOLVEMENT AND ENGAGEMENT

SCIENCE will serve as a first-of-its-kind **academia-industry consortium** to reimagine manufacturing of critical infrastructure materials by advancing solutions and schemas that reduce their carbon footprint significantly.

Industrial entities, start-up companies, professional societies, consulting companies, and government agencies are *invited to join as members* of the SCIENCE CONSORTIUM. The consortium members can propose and sponsor research at the participating institutes at reduced overhead rates, have access to SCIENCE advances and national/international partners, and can select students for internships and/or permanent positions.

## WEBINAR - 02/27/2023: DECARBONIZE WITH SCIENCE

Please join a virtual SCIENCE webinar on 02/27/2023, 2 PM to 3.30 PM MST (4 PM-5.30 PM EST; 1 PM-2.30 AM PST) hosted by the partner universities to learn more about the consortium and its proposed activities and how your involvement in an industry-academia team is vital to decarbonizing heavy industries. There will be presentations of carbon neutrality roadmaps for cement, concrete, and steel industries by industry organizations.

Please register at: <u>https://www.eventbrite.com/e/529585092267</u> Contact information: Prof. Narayanan Neithalath (ASU; **Narayanan.Neithalath@asu.edu**); Prof. Gaurav Sant (UCLA; gsant@ucla.edu); Prof. Ron O'Malley (Missouri S&T; omalleyr@mst.edu); Prof. Sridhar Seetharaman (ASU; seetharaman@asu.edu); David Wahls (ASU; David.Wahls@asu.edu)

