Composites UK Trade Association

IMPERIAL

PROF. ALAN BANKS YOUNG ENGINEER OF THE YEAR AWARD

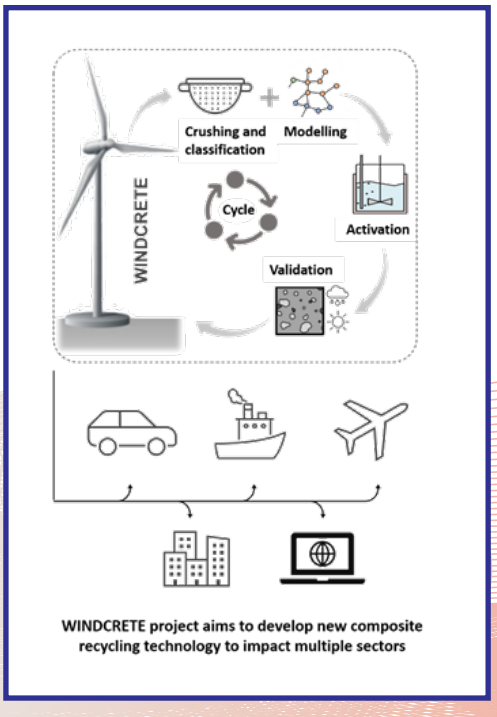
FINALIST: Chao Wu

Dr Chao Wu is a Reader in Civil Engineering Materials at Imperial College London, where he leads the Composites for Energy Infrastructure Group, advancing the design, recycling, and performance of composite materials to support the global Net Zero transition.

Recognising that infrastructure built for fossil fuels is inadequate for renewables, Dr Wu aims to develop high-performance composites for wind, solar, tidal, geothermal, nuclear, and hydrogen systems. His research integrates materials science, chemistry, mechanics, and artificial intelligence to innovate across the composite lifecycle—from design and manufacturing to recycling and reuse. He currently leads two major projects:

Recycling Waste Wind Turbine Blades to Make Low Carbon Concrete: Developing processes to recycle wind turbine blades into low-carbon concrete. Supported by a £2 million UKRI Future Leaders Fellowship, this work delivers scalable circular economy solutions across aviation, marine, and construction.

Multiscale Multiphysics Modelling of Polymer Composites for Hydrogen Economy: Tackling durability and safety challenges for composites in extreme hydrogen conditions, supporting future storage and transport.



WINDCRETE project aims to develop new composite recycling technology to impact multiple sectors

Dr Wu has produced 100+ peer-reviewed articles, 50 international conference papers, and three book contributions. He has secured over £3 million in funding and is a recognised international expert in composites. At Imperial, he co-leads the Composite Centre theme on Design, Life Cycle Analysis, and Recycling.

He also founded and chairs Imperial's Hydrogen Research Network, uniting 70+ academics on hydrogen production, storage, distribution, and applications.

As an educator, Dr Wu has supervised 20+ PhD and 30 MSc students and developed the MSc module Polymers and Polymer Composites, training over 150 graduates in advanced composites.

He is Associate Editor of Case Studies in Construction Materials (Elsevier), Journal of Materials in Civil Engineering (ASCE), and Mechanics of Time-Dependent Materials (Springer), and editorial board of the Journal of Composites for Construction (ASCE).

Learn more at: www.imperial.ac.uk/people/c.wu