ABSTRACT

With the goal of achieving sustainable design, being able to combine optimized geometries with durable construction materials is a major challenge for civil engineering. New research at the University of Bath and the University of Miami aims to solve these problems for the first time by completely replacing internal steel reinforcement in complex optimised concrete structures using a knitted cage made of fibre reinforced polymer (FRP) reinforcement. By fabricating the reinforcement in the desired geometry, it will be possible to provide the required strength exactly where needed, thereby reducing the amount of concrete required to resist internal forces and capitalising on the extraordinary possibilities offered by both concrete and FRP construction materials.