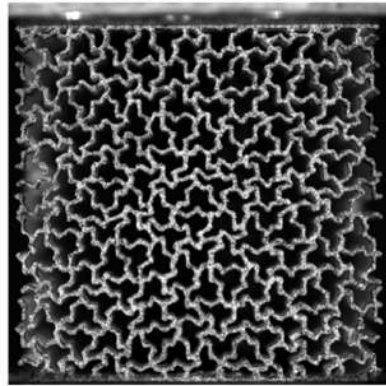
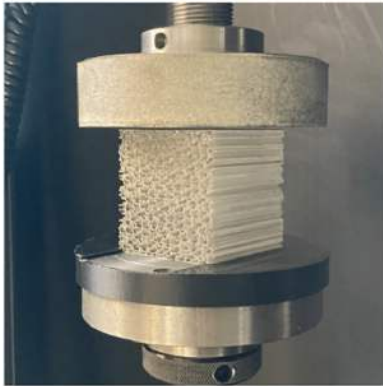


# Elusive Mechanical Properties Hiding in More Elusive Mathematics



**A lecture by Dr Richard Moat from**

**The Open University**

**Wednesday, 29<sup>th</sup> November**

**6:00pm-7.00pm**

(Tea and coffee served from 5:45pm)

**Lillingstone Trust Community Laboratory**

**Discovery Centre, Royal Latin School, Buckingham**



The design of metamaterials, or structures that have properties difficult or impossible to obtain from naturally occurring materials, is a flourishing field of materials engineering. In this lecture the discovery of a honeycomb type metamaterial that when compressed in one direction, doesn't expand in the other direction will be discussed. Such behaviour is commonly exploited in wine bottle corks, but is an elusive property to achieve through materials engineering. This metamaterial has come about as a direct result of the discovery of the aperiodic monotile by British mathematician David Smith back in March this year, solving a 50-year-old mathematics challenge. We will cover all aspects of this metamaterial discovery, including the design of metamaterials, the mathematics of aperiodic order and its application to materials engineering, manufacturing honeycombs using 3d printing, determining the properties of complex structures and finally where such a metamaterial might have application in everyday life, from aeroplane wings to replacement cartilage.

**Entry to these lectures is free to all members of the local community. For further details, or to book a seat, contact Lucy Beckett at [lbeckett@royallatin.org](mailto:lbeckett@royallatin.org) or on 01280 827306.**