

News home

▼ News

2016

2015

2014

2013

2012

2011

RSS

Expert comment

Experts on camera

Find an expert

Social media

For journalists

For staff

► Contact the PR team

 News story

Rudolph's antlers inspire next generation of unbreakable materials

Scientists from Queen Mary University of London (QMUL) have discovered the secret behind the toughness of deer antlers and how they can resist breaking during fights.

Wednesday 21 December 2016

 Share

 Tweel

 Share

 Share

The team looked at the antler structure at the 'nano-level', which is incredibly small, almost one thousandth of the thickness of a hair strand, and were able to identify the mechanisms at work, using state-of-the-art computer modelling and x-ray techniques.

First author Paolino De Falco from QMUL's [School of Engineering and Materials Science](#) said: "The fibrils that make up the antler are staggered rather than in line with each other. This allows them to absorb the energy from the impact of a clash during a fight."

The research, [published in the journal ACS Biomaterials Science & Engineering](#), provides new insights and fills a previous gap in the area of structural modelling of bone. It also opens up possibilities for the creation of a new generation of materials that can resist damage.

Co-author [Dr Ettore Barbieri](#), also from QMUL's School of Engineering and Materials Science, said: "Our next step is to create a 3D printed model with fibres arranged in staggered configuration and linked by an elastic interface.

The aim is to prove that additive manufacturing - where a prototype can be created a layer at a time - can be used to create damage resistant composite material."

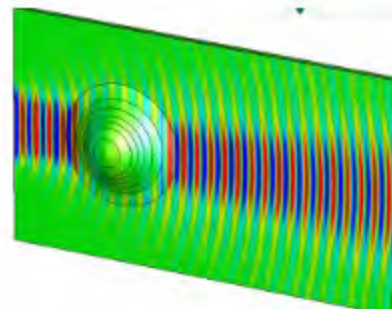
Find out more about studying [Materials Science and Engineering](#) at QMUL



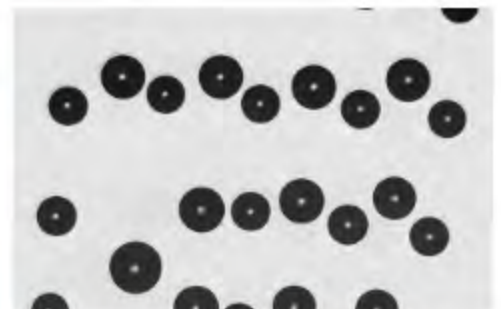
Related items



 News story: [Researchers create synthetic skin](#)
17 November 2016



 News story: [Scientists move one step closer to creating an invisibility cloak](#)
15 July 2016



 News story: [Cereal science: how scientists inverted the Cheerios effect](#)
14 June 2016

For media information, contact:

Neha Okhandiar

Public Relations Manager

Queen Mary University of London

email: n.okhandiar@qmul.ac.uk

