



Smart Materials

You've heard of smart phones, smart meters, smart watches... even smart fridges. Well now it's the turn of smart materials.

This is a show about the future of stuff. Within our lifetimes, solid objects will react, sense, change and move according to their surroundings. This won't be a result of fancy robotics or cunning electronics, but rather the fundamental properties of the materials themselves. Inspired by Leonardo da Vinci's flying machine, drawn over 500 year ago, smart materials will make our aeroplanes of the future adapting, sensing and morphing, so that they fly like birds or bats. In years to come, we will be living in self-regulating houses, riding self-fixing bicycles, and driving on self-illuminating roads, all thanks to smart materials. These are metals, plastics, fabrics and fluids that react to the outside world without any human involvement, and they promise to change the way we live our lives forever.



In this one hour show, award-winning materials scientist and engineer Anna Ploszajski will be your guide on the smart material safari. There will be demonstrations of the smart materials that exist today, and exploration on how they will make the material world around us smarter tomorrow. Expect to see matter doing things you've never seen it do before! This new material world will also raise some interesting ethical questions – what might smart materials mean for future society?

Expect an hour of cutting-edge materials science, side-splitting stand-up comedy, and high-energy demonstrations from one of the UK's best young science communicators. The show can be adapted for 18+, secondary school or family audiences, and all demonstrations have been fully risk-assessed. They include, but are by no means limited to: shape memory alloys, ferrofluids, shape memory polymers, thermochromic materials, self-healing materials and piezoelectrics.

If you'd like to book Anna for your festival, please get in touch:

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Dr Anna Ploszajski

Materials scientist, engineer
and communicator

Dr Anna Ploszajski is an award-winning materials scientist, engineer and communicator, and in 2017 was named Young Engineer of the Year by the Royal Academy of Engineering. She regularly performs stand-up comedy about materials and engineering at venues from the local pub to the Edinburgh Fringe, and was a UK finalist of FameLab 2017, the world's biggest science communication competition.



Her public science demos are notorious for their scale and flare, and she has demonstrated experiments such as her hand-built Rubens' Tube (below) to adult and family audiences at venues like The Royal Institution and the Bloomsbury Theatre. Science festival performances in 2018 included the Cheltenham Science Festival, Blue Dot Festival, and Einstein's Garden at Green Man Festival.

"Anna is a true original, an impressive talent. She is a fantastic performer who brings a fresh approach to materials science. Entertaining and enlightening in equal measure."

– Professor Mark Miodownik

"Anna is almost unique in the UK; a young woman in engineering who's accomplished and intelligent but also hilarious, brave and willing to challenge orthodoxies in amazing ways. Oh, and she can do it all on stage too." – Dr Steve Cross

Anna has discussed materials engineering on numerous national radio and TV programs, including BBC Radio 3, and produces her own podcast about materials called *Handmade*. Her debut book *Handmade: One Scientist's Search for Meaning Through Making* will be published by Bloomsbury in Spring 2021. In her spare time, Anna plays the trumpet in a funk and soul covers band, and goes on adventures in Alan, her camper van.

Find out more at www.annaploszajski.com.

