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- Games
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UK News
Scientists Crack Maths Conundrum

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The mystery of a 140-year-old maths conundrum has finally been cracked.

The breakthrough came in an area known as conformal mapping when a boffin at Imperial College, London finally fixed a vital flaw in a previous formula.

Mathematicians, engineers and scientists all use the technique to monitor airflow in aviation and to visualise the complicated structure of grey matter in the brain.

The current formula, called the Schwarz-Christoffel formula, was created in the mid-19th century by two German mathematicians to allow the mapping which translates information from a complicated shape into a simpler circular shape.

But the whole time there has been a vital flaw in the formula which has meant that shapes that contained holes or irregularities - such as the shape having parts made of different materials - could not be mapped.

The formula is taught to all applied mathematicians and most engineers at university but the way they learn is set to change thanks to the breakthrough.

Professor Darren Crowdy, who made the breakthrough, says cracking the flaw took him 12 years and claims his additions to the formula could open up many new areas that the formula could be used in.

Prof Crowdy, Chair in Applied Mathematics at Imperial College London, said: "My interest in the area arose during the 90s whilst I was doing my PHD.

"I looked into the original formula and then found the deficiency which meant you could not map an object if it contained irregularities.

"I went to a conference in 2003 and heard people who had tried to solve the problem and saw how you could do it. It has taken since then to develop the formula and but I now have the final formula which is very elegant.

"It was very challenging to solve. It required certain expertise and I have been thinking about this for probably 12 years. It required a lot of experience and thinking.

"It is quite a big deal, this formula will appear in text [books](#) now and result in a variety of scientific applications. I would not put my name to it but hopefully history will.

"The formula is used in any situation where we have flow, for example the airflow past and aircraft wing.

"If there was more then one thing getting in the way of this flow then the previous formula didn't work but now we have one that does no matter how many things are in the way.

"The maps are also used for brain imaging and things like measuring the stresses in elastic materials. People like to map out complicated bits into simple circles so they are easier to analyse.

"This formula is an essential piece of mathematical kit which is used the world over. Now, with my additions to it, it can be used in far more complex scenarios than before.

"In industry, for example, this mapping tool was previously inadequate if a piece of metal or other material was not uniform all over - for instance, if it contained parts of a different material, or had holes.

"With my extensions to this formula, you can take account of these differences and map them onto a simple disk shape for analysis in the same way as you can with less complex shapes without any of the holes."

Prof Crowdy's improvements to the Schwarz-Christoffel formula were published in the March-June 2007 issue of Mathematical Proceedings of the Cambridge Philosophical Society.

Professor John Elgin, Head of Mathematics at Imperial College, added: "Darren is perhaps the world's leading expert in solving challenging problems involving multiply connected geometries.

"This long standing classical problem was a natural one for him to tackle. It is an important result: his new formula will appear in the next generation of textbooks."

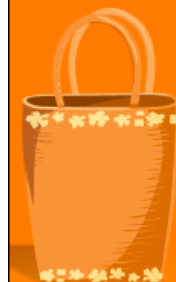
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Sexy Coronation Street star Samia Smith says she has no plans to have children herself despite playing pregnant Maria	
Does Being English Make Us Miss Penalties?	Today 01:51
England football teams are disastrous at penalty shoot-outs because of "historical stereotyping", say psychiatrists.	
Number Of Lap Dancing Clubs Doubles	Today 00:51
Lap dancing clubs have doubled in four years because they are licensed in the same way as coffee shops and karaoke bar	
Manslaughter Rap Doc 'Has Gone On The Run'	Mon 14:08
A bungling foreign doctor crushed the skull of a baby he was trying to deliver with forceps, killing her after a "catast	
Ex EastEnders Star's Lover Jailed For Murder	Mon 13:27
The lover of former EastEnders actress Nicola Cowper was jailed for life today for stabbing a man in the back in an act	
Murder Hunt After Betting Shop Punter Dies	Mon 00:45
A murder hunt has been launched after a 60-year-old punter collapsed and died moments after being attacked inside a bett	
Welsh Warrior Calzaghe "Can Make Millions"	Mon 00:35
Boxing hero Joe Calzaghe could star in a James Bond film and will rake in millions of pounds for years to come after his	
Winter Weather Returns To Chill Brrr-itan	Mon 00:25
Winter weather returned with a vengeance to chill Britain over the weekend, three weeks after British Summer Time offici	
Ding, Dong: The Avon Lady Gets A New Image	Mon 00:15
Ding, dong: the Avon lady ads are no more. The iconic ads have become a burden for the company which is set to launc	
The Bathroom Scales That Could Save Lives	Mon 00:05
Smart bathroom scales that check heart patients' weight could soon be saving thousands of lives. The developers say i	
Key To Detecting Disease Could Be In Urine	Sun 18:05
Brits' unhealthy lifestyles create a metabolic 'fingerprint' in their urine that could be the basis of a new test for di	
Lie Detectors Snare 377 Benefit Cheats	Sun 14:44
Hundreds of benefits fiddlers have been snared since a council starting using lie detectors. More than 370 people hav	
Ex EastEnder Fined For Car Gaffe	Sun 14:39
Former EastEnder Dean Gaffney has been ordered to pay £500 for careless driving after attempting to defend himself in co	
Police Probe After Bookies Collapse Man Dies	Sun 12:07
An investigation has been launched after a 51-year-old man collapsed and died moments after being attacked in a betting	

<p>Twelve Arrests As Internet Vice Ring Smashed Vice Squad cops smashed an internet prostitution ring following a series of raids on suspected brothels in London. Po</p>	Sun 11:21
<p>Jail For eBay Conman A conman has been jailed for selling tens of thousands of pounds worth of fake computer software on internet auction web</p>	Sun 10:55
<p>Woman 'Serious' After Knife Maniac Rampage A knife nut attacked two women within minutes - leaving one seriously ill in hospital after slashing her across the thro</p>	Sat 00:05
<p>Islamic Hate Preacher And His Cronies Jailed The arrogant preacher of hate who heckled then Home Secretary John Reid was jailed for four-and-a-half years today for i</p>	Fri 16:15
<p>Street Star In Hospital After Fall The actress who plays fearsome pensioner Blanche Hunt in Coronation Street is in hospital after a fall. Maggie Jones,</p>	Fri 16:03
<p>Credit Card Scam Man Caught On Camera A brazen thief was captured on CCTV emptying a cash machine of more than £10,000 using 49 cloned credit cards. The m</p>	Fri 15:29
<p>Matalan Murder: Boy, 16, Arrested A 16-year-old youth has been arrested in connection with the murder of Matalan store boss Janie Simpson. Police say t</p>	Fri 15:23
<p>Man Admits Pushing Doctor In Front Of Train A junior doctor pushed into the path of an oncoming train missed death by inches when she fell short of the electrified</p>	Fri 12:44
<p>Bakri Claims His Radical Pal Is Innocent Hate preacher Omar Bakri has insisted that radical Muslim Abu Izzadeen was innocent of inciting terrorism and had been m</p>	Fri 01:05
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<p>'Men Are Sexiest Aged 40' Say Women Most women believe men get sexier with age - and are at their best at 40, according to a survey. A poll by DatingDir</p>	Fri 00:45
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<p>'Prizes Could Combat Truancy' Say Experts Children should be given prizes for attending school to combat truancy, according to education experts. Clean, well-m</p>	Fri 00:25
<p>Call For Screening Plan To Help Elderly Men Two thousand lives a year could be saved by a national screening programme for a leading cause of death among elderly me</p>	Fri 00:15
<p>NHS Diabetes Programme 'May Cause Depression' A £100 million NHS programme to help diabetics check their own blood sugar levels is more likely to make them depressed</p>	Fri 00:05
<p>Muslim Firebrand Faces Life Behind Bars An arrogant Muslim firebrand who brazenly heckled the Home Secretary faces life behind bars after being convicted of enc</p>	Thu 16:58