New Scientist

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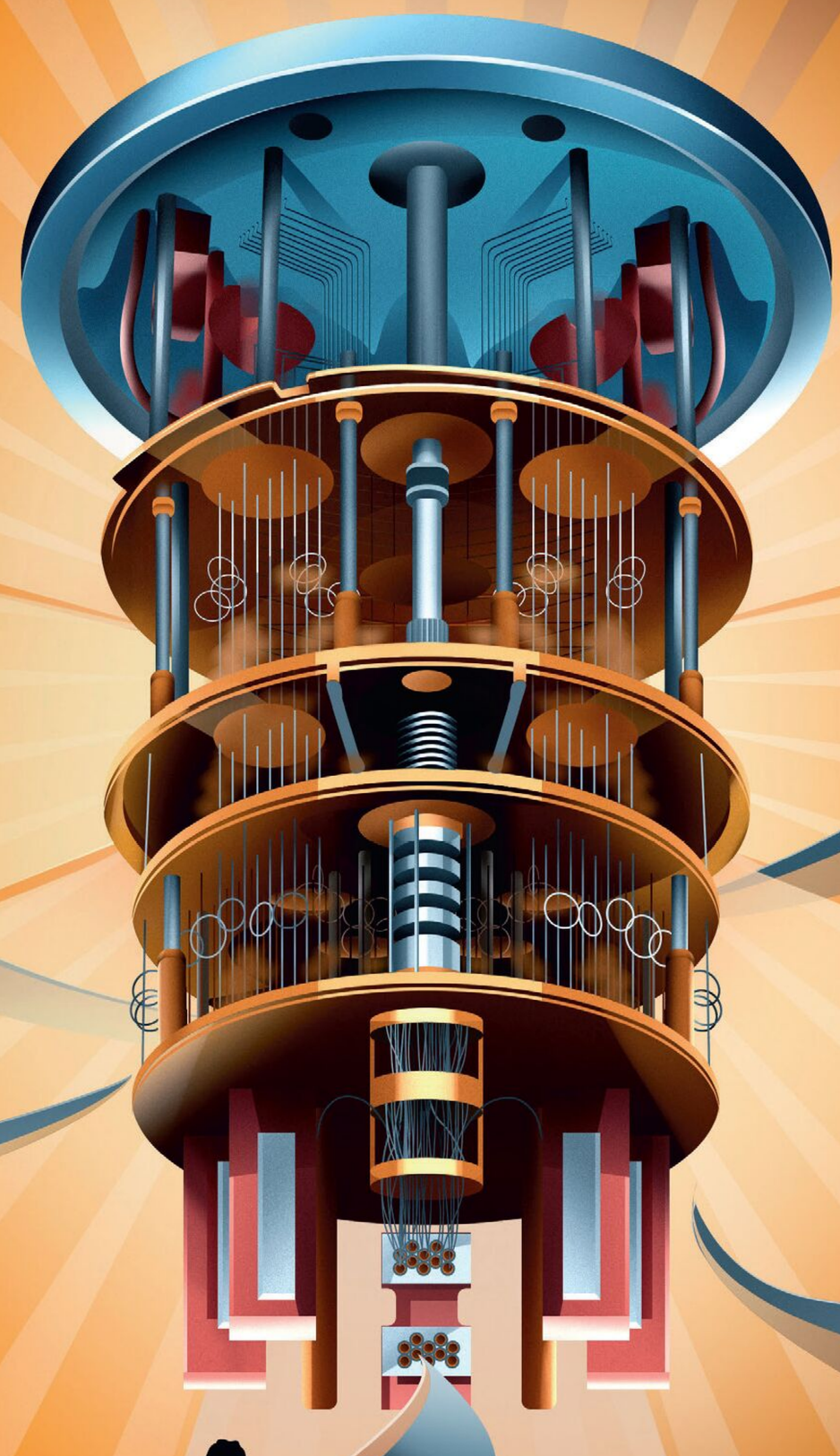

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Space

Closest ever Einstein ring spotted

Stunning image shows rare phenomenon just 600 million light years from Earth

Alex Wilkins

ASTRONOMERS have identified the closest ever Einstein ring, a rare phenomenon where light from a further-off galaxy is bent by the gravity of a galaxy closer to Earth.

Thomas Collett at the University of Portsmouth, UK, and his team realised that the galaxy NGC 6505, which is about 600 million light years from Earth, was actually bending the light of a second galaxy behind it, about 6 billion light years from us (*Astronomy & Astrophysics*, doi.org/n5xw).

The Einstein ring – the circle at the centre of this image and in close up in the inset – was spotted while validating early testing data from the Euclid telescope, which has started scanning billions of galaxies over an area that will eventually span a third of the night sky.

"There was this abundantly obvious Einstein ring," says Collett. "This is probably the prettiest lens we will find in the mission."

ESA/EUCLID/EUCLID CONSORTIUM/NASA, IMAGE PROCESSING BY J.-C. CUILLANDRE, T. LI

Neuroscience

Brain cells found that may tell us to stop eating

NEURONS in the brains of mice tell them to stop eating when they have had enough food – and since people probably have these cells, we might one day be able to target them to help treat obesity.

The finding came amid a wider look at the brain. "The major question that we were seeking to answer was how the brain senses and responds to different signals," says Alexander Nectow at Columbia University in New York.

To learn more, he and his team used a type of molecular profiling to distinguish between different cell types in the brains of mice. In the dorsal raphe nucleus – a part of the brainstem linked to functions including eating, mood and sleep – they came across cells that produce a hormone called cholecystokinin, which helps regulate appetite.

To study what these cells are sensing to kick them into action, the researchers measured their activity as the mice went about their day.

"Every time the animals went for a bite of food, the activity ramped up and then decayed," says Nectow. "We are able to show that these neurons sense things like the smell and sight of food, the taste of food, the sensation of food in the gut and the neural hormones that are released in response to food in the gut, and leverage that information to actually terminate a meal."

Next, the researchers engineered the neurons so they could be switched on and off with light. When they used light to activate them, the mice slowed down their eating. The more intense the activation, the faster the animals slowed and then stopped (*Cell*, doi.org/g834gm).

Because the neurons sit in the brainstem, an ancestral feature that is similar across vertebrates, Nectow thinks we probably also have them. "Even though we haven't confirmed it, my guess would be that humans have these neurons, certainly."

"These neurons sense things like the smell, sight and taste of food, and if there is food in the gut"

The team also found that the mouse neurons could be activated by a compound called a glucagon-like peptide-1 (GLP-1) agonist, a type of drug used to treat obesity and type 2 diabetes, the most familiar being semaglutide, sold under brand names such as Ozempic and Wegovy.

If these neurons have the same function in people, we could, in theory, modulate them to control eating habits in those with obesity or even combine this approach with GLP-1-based drugs, to achieve greater weight loss, says Nectow.

Chris Simms