

## YOUR NEWS WANTED

The news section gives updates on what has been happening in physics education worldwide. Items included show how events in one country could be relevant to good practice elsewhere in the world. Contributions are welcome from all of our readers. They should be about 200–300 words long and can include pictures. Please e-mail your news items for the November issue of *Physics Education* to [ped@iop.org](mailto:ped@iop.org) before 2 October 2008.

## PARTICLE PHYSICS

## Particles come in all shapes and sizes

Art can sometimes combine with science to create some interesting offspring. A Californian woman has produced a line of colourful plush toys that represent subatomic particles. Julie Peasley's Particle Zoo ([www.particlezoo.net](http://www.particlezoo.net)) consists of 22 particles and 11 antiparticles. But putting a face on bosons, neutrinos, quarks and tachyons wasn't child's play.

Peasley, a graphic artist by profession, has always had an interest in physics and cosmology. Last summer, after attending a public lecture on particle physics, this was revitalized. When artistic inspiration struck, she consulted physics books and created toy particles that reflected the scientific properties of the real things. She ran the ideas past a physicist for confirmation.

'I wanted to be as accurate as possible within my artistic interpretation,' says Peasley. She currently hand-stitches each particle at the rate of two per hour. The toys are stuffed with a filling (polished gravel or poly beads of different weights) that—at least loosely—represents the relative particles' masses. They are around 10 cm wide and have a tag attached that lists scientific facts about the real particle. They each cost around £5.

Peasley chose the designs and faces carefully. For instance, protons and electrons smile, whereas



*Nobel prize-winner George Smoot clutches his toy photon.*

the neutrons look decidedly neutral. Triangular-shaped quarks point, appropriately, up or down, while others definitely have 'charm' or look 'strange'.

'The Z-boson is orthogonally related to the photon, so I took the photon shape and rotated it 90°,' says Peasley. Then there are the three neutrinos, which each have a black bandit mask over the eyes because they 'steal' energy.

As for hypothetical particles, Peasley says there's good science behind her tachyon's shark-like appearance: 'If a tachyon shows up in an equation, that's a red flag and suggests that something is wrong with the equation, so I wanted the tachyons to look a little devious.' For the set of antiparticles, Peasley clearly reversed and flipped the regular particles.

Their popularity among sci-

ence researchers, teachers and professors has been staggering. After some publicity in the UK, about 50% of the particles were shipped to Britain in the first half of 2008. Many have come to rest at Oxford and Cambridge universities, Exeter Day School, Kingston Grammar and the Rutherford Appleton Laboratory. Staff from the Tyndall Institute in Ireland, and the Fermi and Brookhaven labs in the US have also requested samples. Recently a complete set was ordered by a British primary school.

Peasley says that she was contacted by a representative from CERN expressing interest in selling the toys as souvenirs, and producers from the US TV sitcom *The Big Bang Theory* are considering giving them cameo roles as props in the second series.

Currently, Peasley is looking to mass-produce her particles. The quirky quality of the pieces appeals to adults, but she also feels that her toys can introduce younger students to the often baffling world of particle physics. With all of the interest in the Large Hadron Collider this year, she hopes that her macroparticles will continue to be a smash hit.

**Nick Thomas**, *associate professor, Department of Chemistry, Auburn University, Montgomery, Alabama, US*