

# Physics or *Doctor Who*?



**In November, we celebrate the 60th anniversary of *Doctor Who* and challenge our readers with a quiz to spot the real physics terms amid the science fiction.**

**T**his November, *Doctor Who*, the longest-running science fiction television series in the world, celebrates its 60th anniversary, with three special episodes scheduled. Much of the show is iconic: its slightly creepy electronic theme tune (groundbreaking in the 1960s), the bigger-on-the-inside TARDIS, the relentlessly exterminatory daleks, and the Doctor's ability to quite literally change with the times, regenerating to a new form every few seasons. One thing that hasn't changed over the years is the show's use of terminology that almost, but doesn't quite, sound like real physics. Or is it that real physics sounds a bit like *Doctor Who*?

Quiz time! Which of the following concepts are from *Doctor Who*, and which are real physics terms?

Is rift energy:

- A: energy gain from crystal dislocations, in physics?
- B: energy derived from temporal rifts, in *Doctor Who*?

Is a swarmalator:

- A: a mobile oscillator whose motion is coupled to its phase, in physics?
- B: a weapon that causes its targets to form zombie-like groups, in *Doctor Who*?

Is a sonic screwdriver:

- A: the phononic analogue of an optical tweezer, in physics?
- B: a device for lock picking, in *Doctor Who*?

Is a helmic regulator:

- A: part of the immune system, often studied in biophysics?
- B: a component of a TARDIS control panel, in *Doctor Who*?

Is a meron:

- A: a type of nontrivial topological spin texture, in physics?
- B: a reptilian alien species, in *Doctor Who*?

Is altermagnetism:

- A: a type of magnetism, displaying features associated with both ferromagnetism and antiferromagnetism, in physics?
- B: a type of magnetism present in minerals from Gallifrey, in *Doctor Who*?

Is a time crystal:

- A: a system whose lowest-energy state involves repetitive motion, in physics?
- B: a gemstone providing immortality to its owner, in *Doctor Who*?

Is quantum locking:

- A: a way of doing metrology using frequency combs, in physics?
- B: a defence mechanism of the Weeping Angels, in *Doctor Who*?

Is a vortex manipulator:

- A: a device used to tune superconductivity in crystals, in physics?
- B: another way to time travel, in *Doctor Who*?

Is a trionic lattice:

- A: a moire pattern with threefold symmetry, in physics?
- B: a key to a time cabinet, in *Doctor Who*?

Bonus question: what does TARDIS stand for?

- A: targeted-RNA directional sequencing
- B: target diffraction in situ
- C: temperature and radiative diffusion in supernovae
- D: tomographic absorption reconstruction and density inference scheme
- E: time and relative dimension in space
- F: all of the above

*Answers: rift energy, B; swarmalator, A; sonic screwdriver, B; helmic regulator, B; meron, A; altermagnetism, A; time crystal, A; quantum locking, B; vortex manipulator, B; trionic lattice, B; TARDIS, F (believe it or not, they are real scientific acronyms).*

If most of your answers were A, you perhaps should watch more science fiction. If most of your answers were B, you probably don't realize how strange a lot of physics terminology is. We suggest you read more *Nature Reviews Physics*.

Published online: 2 November 2023