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HiRadMat: materials under scrutiny

The HiRadMat facility, located in the TNC tunnel.

CERN's new facility, HiRadMat (High Radiation to Materials), which is designed to test materials for the world's future particle accelerators, should be operational and welcoming its first experiments by the end of the year.

The materials used in the LHC and its experiments are exposed to very high-energy particles. The LHC machine experts obviously didn't wait for the first collisions in the world's most powerful accelerator to put the materials through their paces - the equipment was validated following a series of stringent tests. And these tests will get even tougher now, with the arrival of HiRadMat.

The tunnel that formerly housed the West Area Neutrino Facility (WANF) has been completely revamped to make way for CERN's latest facility, HiRadMat. Supported by the Radioprotection service, a team from the Engineering (EN) Department handled the dismantling operations from October 2009 to December 2010. "We could only work on dismantling the old WANF machinery at an average rate of one week in six (following the LHC schedule)," explains HiRadMat Deputy Project Leader, Sébastien Evrard. "The radioactive materials were processed, stored and, where possible, reused for HiRadMat, in strict compliance with radiation protection rules." This was the first dismantling operation on such a large scale since the dismantling of LEP, and the extraction of certain items from the WANF took a great deal of organising, using automatic hook devices and video cameras to allow the operators to keep their distance from the radioactive components. This part of the work went off very well, giving EN Department engineers solid experience in remote handling techniques. As Sébastien

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One small step for a tram…

It's now just over a month since the No. 18 tram arrived at CERN, and it has already changed the face of the Laboratory. We will soon be able to enjoy a period free of road works in front of the Meyrin site, but it's unlikely to last long, since the tram line is set to be extended across the border into France within the next few years.

That first tram, which arrived at CERN full of representatives of our local authorities on 30 April, can justly be thought of as a herald for major changes to come, both tangible and symbolic.

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Comic book tells the tale of Dark Matter

The sciences star in few comic books. On occasion, the comic narrative may feature a villain using science for his nefarious deeds. Or perhaps the hero will have a wild-haired scientific genius for his sidekick. But you wouldn't expect to read a comic about science news, and you certainly wouldn't expect that news to be about particle physics. That is, unless you've read True Tales.

Released in May 2011, the True Tales comic series tackles complicated physics through simple illustrations. The brainchild of Daniel Whiteson – a member of the ATLAS collaboration and an assistant professor at the University of California, Irvine - the comic book depicts the complex topics being studied at CERN, tackling dark matter in its first issue. "Deciding to explain particle physics in a comic book was the easy part," he explains. "After all, what's a Feynman diagram but a technical comic strip? The only issue was finding an artist to do it."

That's where Jorge Cham came in. As the creator of the PhD Comics series "Piled Higher and Deeper", which he began as an overworked, disgruntled Mechanical Engineering PhD student, Cham has gained both critical acclaim and cult popularity for his depiction of post-graduate life. Since completing his own PhD, Cham has become a full-time comic-book artist, giving guest lectures to graduate students on "The Power of Procrastination". When Whiteson and fellow Irvine professor Jonathan Feng pitched the comic book to Cham, he jumped at the idea - bringing an artistic hand and a technical mind to the project.

With the team assembled, work began on the layout and content of the first True Tales comic. But as they progressed, the original idea of creating a simple comic strip grew more involved. An off-hand, casual lunchtime conversation recorded between the creators became the source material for a whole new production – a video (see below) in which drawings appear as the narration unfolds.

"The whole thing was completely unscripted," explains Whiteson. "We hadn't planned on our conversation being involved in the comic, so we'd spoken very loosely and informally about complicated science. But it was that same informal-yet-informed approach that we wanted to get across in the video, so including it with the comic worked perfectly."

The next edition of True Tales is already in the works. "We're hoping that when the LHC discovers something new, we'll be able to use the comic to explain what it is, what it means, and how we saw it," concludes Whiteson.

Katarina Anthony