

Keep funding 'basic science,' chief of particle physics lab tells Flaherty

BY TOM SPEARS, THE OTTAWA CITIZEN JUNE 14, 2011



Rolf-Dieter Heuer, director general of CERN, the European Organization for Nuclear Research, was in Ottawa to plead the case for science funding with Finance Minister Jim Flaherty.

OTTAWA — The boss of the world's most famous particle physics lab was in Ottawa on Tuesday, one day after filling a 1,000-seat auditorium to explain CERN and its work to ordinary Canadians.

It's not complicated, said Rolf-Dieter Heuer. Just imagine a picket fence.

Heuer travels constantly as director-general of CERN, the lab near Geneva where scientists are smashing together parts of atoms, trying to find a particle that last existed a little after the Big Bang.

He gave a packed public lecture in St. John's, NFLD, on Monday and will be in Victoria on Wednesday. With a free day Tuesday, he stopped in to visit Finance Minister Jim Flaherty (the two had met once at an economics summit in Davos, Switzerland) and the National Research Council.

So, about that picket fence.

In public talks, "I try to give examples which connect to daily life," he said.

One involves facing a fence. You can't see it, so you throw a ball at it to see what's there. At first you use a basketball, and it bounces back every time. Maybe the object is a wall.

But if you throw little table-tennis balls, some bounce off pickets and some go through the gaps. Eventually, the pattern of hits and misses shows the outline of a fence.

Use an even smaller probe, such as a needle, "and if you probe billions of times, then you might also find knotholes in the fence."

Physicists use an accelerator to shoot tiny particles at objects too small for microscopes to see, to probe what's there.

Heuer visits Canada often. He worked with a large Canadian contingent on an experiment 25 years ago and maintained his connections, giving Canada strong contacts in the physics world. He spoke on a wide range of topics in an interview:

On meeting Flaherty: "I would like to point out the richness of basic science and the importance of basic science." This means research that doesn't have an immediate applied use in commerce or technology, but which can lead to these uses later.

Without support for basic science, "you have no basics any more to apply," he said.

He didn't mention Canadian policy, but his meeting with Flaherty comes at a time when the NRC and other federal science departments are being pushed to do more applied science and less basic work.

On progress at CERN: There are many tiny advances that allow the new Large Hadron Collider to reach higher and higher powers, and a flood of data slowly builds from this. It's looking for the Higgs boson, a particle believed to exist that has never been observed.

"I hope that by the end of next year we'll have an answer to the Shakespeare question of the Higgs — to be or not to be. End of next year, I'm sticking out my neck."

As well, a Canadian-led group made a major advance with the recent discovery of how to hold antimatter atoms for many minutes at a time, he said.

On scientists telling the public what they do: "If you try to explain in detail, everybody will be lost immediately." Less detail and more approximation helps, he suggests. "It gives the picture of what is behind what we're saying."

But he also feels society has lost sight of science, perhaps overwhelmed with the mass of Internet information.

He hasn't seen *The Big Bang Theory* [Note] i.e. the TV sitcom [/NOTE] , but likes the idea of science comedy.

"The main thing is that we transport science back into society. That's one of the biggest problems today. Everybody's life is based on science, in one way or the other, but nobody talks about it."