Wendy Taylor

Professor of Physics, Department of Physics and Astronomy at York University
Toronto, ON, CA

I search for exotic particles with the ATLAS experiment at the CERN Large Hadron Collider.

Biography

As a child, I was always intrigued by the question of "how things worked". In high school, I discovered a passion for physics, computer programming and electronics. As an undergraduate UBC physics student, I spent several co-op terms at TRIUMF, Canada's national particle and nuclear physics laboratory. I was doing research for a rare kaon decay experiment located at Brookhaven National Laboratory (USA) and became fascinated by particle physics. Kaons are short-lived composite particles with s quarks that have matter and antimatter versions that behave differently. They can thus yield important information about how all the antimatter in the universe was consumed shortly after the Big Bang. My PhD thesis at the University Toronto comprised a study of composite b-quark particle formation using the CDF experiment at Fermilab (USA). Like kaons, particles with b quarks have curious matter-antimatter differences. As a postdoc employed by SUNY Stony Brook (USA) working on the D0 experiment at Fermilab, I helped build and commission custom-designed electronics to identify b-quark particles in real time. In 2004, I returned to Canada to hold a Canada Research Chair in Experimental Particle Physics at York University (Toronto). As such, I led the D0 team that first observed evidence of the particle-antiparticle transformations of Bs mesons (composite particles with b and s quarks). Then I joined the ATLAS experiment at the LHC, the world's highest energy particle accelerator. My current research focuses on the search for the magnetic monopole, a hypothetical particle with only a north or south magnetic pole. Throughout my career, I have been engaged in science outreach to the public and to government agencies. I am a dedicated advocate for women in physics and for equity for all within science, academia and society as a whole.

Areas of Expertise

Particle Physics, Physics, Antimatter, Magnetic monopoles, Stable massive particles

Affiliations

ATLAS Collaboration, Member, TRIUMF Board of Management, Member, Canadian Association of Physicists, Member, Canadian Institute of Particle Physics, Member, American Physical Society, Member

Event Appearances

Antimatter: From the Subatomic to the Cosmological Scales
Royal Astronomical Society of Canada

Panel Discussion member
York Science Forum: Dark Matter and the Dinosaurs

Antimatter Isn't Just Science Fiction!
The Science of Science Fiction Series

Panel Discussion member
"Particle Fever" documentary showing sponsored by York and RCI

Panel Discussion member
"Particle Fever" documentary showing

Guest Scientist
Royal Canadian Institute for the Advancement of Science Gala

Unlocking the Mystery of Mass: The Search for the Higgs Boson
Royal Canadian Institute for the Advancement of Science Lecture

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Education

University of Toronto
Ph.D. Physics

University of Toronto
M.Sc. Physics

University of British Columbia
B.Sc. (Hons.) Physics

Accomplishments

Canada Research Chair
Tier II CRC in Experimental Particle Physics, York University, 2004-2014

Early Researcher Award
Ontario Ministry of Research and Innovation, 2008-2011
