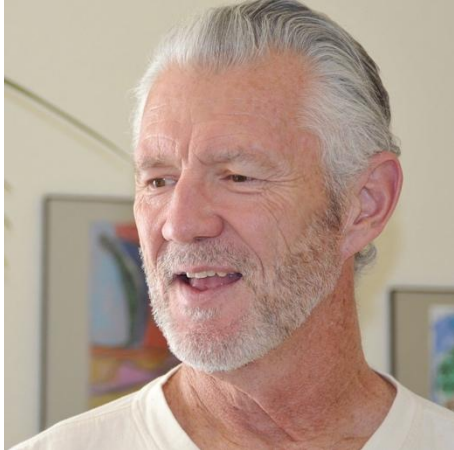


Allan Angus

Independent author and instructor

Friday, September 5, 11:00 am. Osborne A204

Emmy Noether's Two Theorems and the Standard Model



Emmy Noether has had a profound impact on physics, beginning with her work on the failure of conservation of energy in Einstein's General Theory of Relativity. She was invited to work on this problem by David Hilbert and Hermann Weyl, and she published her results in 1918. It was not until the 1950s that her work on local symmetry groups again caught attention, with the rise of gauge theories in QED and QCD. Almost nowhere are her two theories discussed in this context, with a passing reference to global symmetries and conservation laws (which failed in GR), and then moving along to local gauge symmetries without reference to her second theorem. This talk will address her two theorems directly and show how the second theorem is deeply embedded in the Standard Model's local symmetries.

Short Bio

Allan Angus received his BSc in Physics with a concentration in Electronics in 1979 from the University of Calgary. In that year, he tied for third in the Canadian Association of Physics Teachers' Exam (CAPT). He went on to earn an MSc in Electrical Engineering and an MBA in Entrepreneurship and Finance, also from the U of C. He is now retired and working on a book on theoretical physics.

Allan's interests are both very theoretical and practical. He holds over one dozen patents on inventions ranging from land mobile antenna design to miniature portable assisted-GPS devices. He has been the CTO of a nationwide wireless business in Dallas and a startup GPS tracking business in Nebraska. He was chairman of and a contributor to many standards bodies in North American cellular and messaging.

In part, his interest in Noether's work stems from a question he was asked in 1978 by his instructor, Dr. Ranga Srinivasan, in a fourth-year theoretical physics class: "What is the meaning of the A-field?"