

NEW from Amptek Digital Multichannel Analyzer



The MCA8000D is a full-featured digital multichannel analyzer intended to be used with a wide variety of detector systems.

The easy to use 'Pocket MCA' can fit in a shirt pocket.

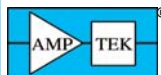
FEATURES OF THE MCA8000D

- Compatible with traditional analog pulse shaping
- MCA and MCS modes
- High speed ADC (100 MHz, 16 bit) with digital pulse height measurement
- 8k data channels
- Minimum pulse peaking time 500 ns
- Conversion time 10 ns
- Sliding-scale linearization
- Differential nonlinearity $< \pm 0.6\%$
- Integral nonlinearity $< \pm 0.02\%$
- Two peak detection modes for nuclear spectroscopy or particle counter calibration in clean rooms.
- Two TTL compatible gates for coincidence and anticoincidence
- USB, RS-232, and Ethernet communication interfaces
- USB powered
- Dimensions: 125 x 71 x 20 mm
- Weight: <165 g

Free Software

Free Software Development Kit (SDK). Complete protocol and example code for custom software applications.

Free Display and Acquisition software.



AMPTEK Inc.
www.amptek.com

Particle Fever: A look behind the scenes of the Higgs discovery

On 4 July 2012, the discovery of the Higgs particle at the Large Hadron Collider made headlines around the world. A few years earlier David Kaplan, a theoretical physicist at the Johns Hopkins University, had decided to record the historic events at the LHC. He teamed up with theoretical-physicist-turned-filmmaker Mark Levinson.

CERN



Their film, *Particle Fever*, follows six physicists (including Kaplan) from before the LHC turned on in 2008, through the jubilation of the first circulating beams, the setbacks when the LHC hit trouble, the first high-energy proton-proton collisions (see photo), to the spotting of the Higgs particle and physicists beginning to wrap their heads around the new discoveries. (See, for example, *PHYSICS TODAY*, October 2009, page 25, and August 2012, page 19.)

Physics explanations are presented in the film, but the main emphases are the scientists and the scientific process. With the film, Kaplan and Levinson aim to give the wider world a glimpse into the lives of physicists and to show that science, like art, is an essential human activity.

In one scene an economist asks about the financial gains to be expected from discoveries at the LHC. Kaplan is quick on his feet: "It's a simple answer: I have no idea. . . . It could be nothing, other than understanding—everything."

Particle Fever opens on 5 March at the Film Forum in New York City and soon thereafter at other theaters across the country (see particlefever.com for schedule). See also the Q&A with the filmmakers at <http://www.physicstoday.org> in the Daily Edition's Singularities department.

Toni Feder

Taking stock of the nanotechnology consumer products market

A private database in the US invites nanomaterials manufacturers to volunteer their data; similar measures in Europe want that reporting to be mandatory.

Children's toys coated with anti-microbial silver nanoparticles and bicycle tires spiked with grip-improving carbon nanotubes are among the more than 1600 consumer products logged in the Nanotechnology

Consumer Products Inventory (CPI). The free online database (<http://www.nanotechproject.org/cpi>), which lists products claiming to contain nanomaterials, was created in 2005 by the Woodrow Wilson International Center