# **PHYSICS TODAY**

## CONTENIDO

## VOLUME 63 No. 9 SEPTEMBER 2010

## **FEATURE ARTICLES**

## **30** The freedom of confinement in complex fluids.

When it comes to self-assembly of photonic, drug-delivery, and biomimetic materials, big opportunities can be found in small spaces. *Amy Q. Shen and Perry Cheung.* 

## 38 The discovery of superconductivity.

A century ago Heike Kamerlingh Onnes set a new standard for physics research laboratories. But careless notebook entries have confused the story of his greatest discovery.

Dirk van Delft and Peter Kes.

## 44 Imaging with ambient noise.

Whether noise is a nuisance or a signal depends on how it's processed. By cross-correlating noise recorded at two sensors, researchers can retrieve the waves that propagate between them and extract details about the intervening medium.

Roel Snieder and Kees Wapenaar.

## NEWS

## 13 Search and Discovery

Femtosecond snapshorts capture atomic motion in a powdered solid... Radio waves map matter without counting galaxies... Laser-generated bubbles take aim at a cell membrane... Physics update.

## 20 Issues and events

'Copilot in chief' Augustine takes on space, energy, and education... NSF speeds funding for research on BP oil spill... Global R & D spending up, US industry spending down... China, others dig more and deeper underground labs... Physics Olympiad meets in Croatia...Physics bachelors at work... News notes... Web watch.

## **DEPARTMENTS**

## 8 Letter

## 55 Books

The Science on Women and Science, edited by C. H. Sommers (reviewed by A. L. R. Bug)...The Stability of Matter in Quantum Mechanics, E. H.

Lieb and Seiringer (reviewed by J. Stubbe)... Crafting the Quantum: Arnold Sommerfeld and Practice of Theory, 1890-1926, (reviewed by S. K. Lamoreaux)... Optical Matematerials: fundamentals and Applications, W. Cai and V. Shalaev (reviewed by D. K. Paul)... The Hancocks of Marlborough: Rubber, Art, and the Industrial Revolution – A Family of Inventive Genius, J. Loadman and F. James (reviewed by C. MacLeod)... New books.

## 62 New products

Focus on spectroscopy.

## 65 Obituaries

Indrex Martinson...Robert Vivian Pound.

## 68 Quick study

Vortices and tall buildings: A recipe for resonance. *Peter A. Irwin.* 

## 71 Job opportunities

## 88 Back Scatter

NanoFET bioprobe.

#### **COVER:**

This image from a simulation of wind blowing past a building (black square) reveals the vortices that are shed downwind of the building; dark orange represents the highest air speeds, dark blue the lowest. As a result of such vortex formation and shed-ding, tall buildings can experience large, potentially catastrophic forces. To learn how building designers and engineers tame those forces, turn to the Quick Study by Peter Irwin beginning on page 68. (Courtesy of the computational fluid dynamics group at Rowan Williams Davies and Irwin Inc.)