Ancient TL

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Institute of Physics Awards 2008

In 2008, two eminent scientists in the field of luminescence were honoured with the award of medals by the Institute of Physics. The Appleton medal was awarded to Professor Ann Wintle and the Gabor medal to Doreen Stoneham. The awards were formally made on 24th January 2008 in London. Excerpts from the citations accompanying each award are reproduced here.

Professor Ann Wintle receiving the Appleton medal from the President of the Institute of Physics, Peter Saraga.

2008 Appleton medal and prize
Professor Ann Wintle

The Appleton medal and prize for distinguished research in environment, earth or atmospheric physics has been awarded to Professor Ann Grace Wintle, Professor Emeritus in the Institute of Geography and Earth Sciences, University of Wales Aberystwyth, for her outstanding contribution in the development and application of luminescence properties of minerals as a geological dating tool applicable to the past one million years.

In 1979, Wintle showed that the TL signal from mineral grains in deep sea cores could be extracted. This seminal discovery opened up a whole new dating technique for Quaternary sediments which can extend back beyond the range of radio-carbon dating and is applicable to a wider range of sediments.

Since 1991, Wintle became involved in applying the more precise technique of optically stimulated luminescence (OSL), first from feldspars and then quartz. During the past 10 years, she has been at the forefront of developing methods for dating quartz, carrying out basic experiments to characterise the OSL signals.

Her research has also included applications such as dating coastal sediment in Africa, including sands from caves with early human remains from 70,000 years ago, and wind blown silt deposits in China going back to about one million years.

Doreen Stoneham with the Gabor medal, accompanied by her husband Marshall Stoneham

2008 Gabor medal and prize
Doreen Stoneham

The Gabor medal and prize for distinguished work in the application of physics in an industrial, commercial or business context has been awarded to Mrs Doreen Stoneham, Director and Company Secretary of Oxford Authentication Ltd, for her successful establishment of a world-leading company that authenticates ceramics for the art world.

Oxford Authentication Ltd, founded by Mrs Stoneham, leads the world in authenticating ceramic antiquities. Its certificates are accepted by all leading auction houses, museums, collectors and art dealers.

The technique used is thermoluminescence (TL) which gives an objective guide to when the ceramic

was last fired. It was pioneered at Oxford University's Research Laboratory for Archaeology and the History of Art (RLAHA), where Stoneham worked successfully developing research laboratory approaches into reliable commercial methods for combating art forgery. She developed a method of authenticating high-fired ceramics like stoneware and porcelains using a novel sampling approach.

Since TL depends on the radiation that the sample has been exposed to, it can be used as a dosimetry technique. Building on her extensive experience with ceramics, she was able to devise new dosimeters to measure radiation exposure at nuclear sites. As a result, she was an expert witness in crucial international evaluations of the Chernobyl and Hiroshima nuclear events.

When in 1997, RLAHA decided to move its research away from TL, Stoneham seized the opportunity to start a company to continue providing the commercial authentication service. Building on a reputation for unmatched technical expertise and for vigilance in refining techniques to beat the forgers' tricks, Stoneham has won the trust of the international legal and art worlds. The result is that company has a world-wide clientele.