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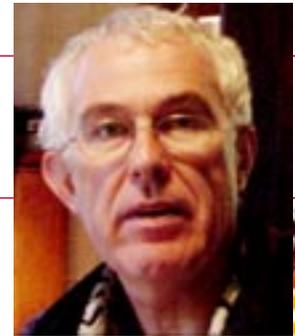
THE FACULTY OF SCIENCE, DEAN'S LECTURE SERIES

# SUPERFRACTALS

**Professor Michael Barnsley**  
Visiting Fellow, Department of Mathematics,  
Faculty of Science, ANU



Wednesday 15 October 2003, 6.45pm for 7pm  
Theatre 3, Manning Clark Centre, Union Court, ANU



This lecture will describe the background, discovery and some potential applications of superfractals. A superfractal may be thought of as a vast 'gallery' of related pictures possessing intricate and often beautiful detail at all levels of magnification.

These pictures represent a new type of fractal. (Ordinary fractals, such as a fern, have just one basic pattern at smaller and smaller scales.)

Michael Barnsley, in joint work with John Hutchinson and Orjan Stenflo, discovered these fascinating objects eleven months ago via a surprising generalisation of the 'Chaos Game', which is an easy way by which school kids can make and learn about fractals. Superfractals solve several outstanding problems in fractal geometry and possess a remarkable property – each picture in the 'gallery' appears, upon any close examination, to be made from a random assemblage of a number of other pictures in the gallery.

One application for these superfractals is computer graphics with a vastly superior quality of texture to that currently seen in today's programs, films and games. But they may also be instrumental to new insights in economics and biology, by providing novel models for stock market graphs and geometries for growing organisms.

Born in 1946 to a literary household, Michael Fielding Barnsley escaped to pursue mathematics at Oxford (BA 1968) and theoretical chemistry at Wisconsin (PhD 1972). In 1985 he was promoted to Professor of Mathematics at the Georgia Institute of Technology. In 1987 he co-founded Iterated Systems Inc. that later licensed fractal image compression technology to Microsoft. His main research area is fractal geometry: he has to his name a number of patents, research papers, books, supervised doctoral students and one film. He is currently doing research at ANU.



Professor Michael Barnsley is one of the world's foremost communicators in mathematics and information technology.

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or visit [http://info.anu.edu.au/mac/Events/Toyota\\_Public\\_Lectures/Index.asp](http://info.anu.edu.au/mac/Events/Toyota_Public_Lectures/Index.asp)

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