abstract

FRIENDS FORUM
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

Most metals and ceramics are composed of many individual crystals fused together. Foams are composed of many individual bubbles. In both cases, as time passes, the picture evolves and coarsens. The average size of a crystal or a bubble increases. (You can see this happening in the foam on top of a freshly poured glass of beer).

In 1952, von Neumann discovered a formula for the rate of growth of an individual crystal or bubble for the two dimensional analogue of the situation. However the realistic three dimensional case remained open. Recently, the corresponding formula was discovered for the case of three dimensions (or more!), in joint work with David Srolovitz. Apart from its practical relevance, this opens up many new mathematical questions with geometric and visual appeal.

Robert MacPherson has been a Professor at the Institute for Advanced Study since 1994. His work has introduced radically new approaches to the topology of singular spaces and promoted investigations across a great spectrum of mathematics. MacPherson works in several fields of geometry-topology, algebraic geometry, differential geometry, and singularity theory, and is especially interested in aspects of geometry that interact with other areas of mathematics. In 1992, he received the National Academy of Sciences Award in Mathematics, and in 2002, he received the Leroy P. Steele Prize from the American Mathematical Society. MacPherson recently returned from Zurich, where he was awarded the first Heinz Hopf Prize, given by ETH Zurich for outstanding scientific work in the field of pure mathematics. Educated at Swarthmore College and Harvard University, MacPherson was awarded his Ph.D. from Harvard in 1970. Before coming to the Institute, he taught at Brown University and the Massachusetts Institute of Technology.