



1989, VIII, 370 p.

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Luciano Pietronero (Ed.)

# Fractals' Physical Origin and Properties

This volume contains the Proceedings of the Special Seminar on: FRAGTALS held from October 9-15, 1988 at the Ettore Majorana Centre for Scientific Culture, Erice (Trapani), Italy. The concepts of self-similarity and scale invariance have arisen independently in several areas. One is the study of critical properties of phase transitions; another is fractal geometry, which involves the concept of (non-integer) fractal dimension. These two areas have now come together, and their methods have extended to various fields of physics. The purpose of this Seminar was to provide an overview of the recent developments in the field. Most of the contributions are theoretical, but some experimental work is also included. During the past few years two tendencies have emerged in this field: one is to realize that many phenomena can be naturally modelled by fractal structures. So one can use this concept to define simple models and study their physical properties. The second point of view is more microscopic and tries to answer the question: why nature gives rise to fractal structures. This implies the formulation of fractal growth models based on physical concepts and their theoretical understanding in the same sense as the Renormalization Group method has allowed to understand the critical properties of phase transitions.

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