

Foreword

Since 1987 and the publication of "Non Linear Phenomena in Materials Science", many new developments have appeared, some of which were initiated during informal discussions at the Aussois meeting. The methods and techniques of non linear Physics have been applied to an increasing number of long standing problems.

It is now time to attempt a synthesis of these new achievements. The present volume was prepared in the same spirit as the previous one. Although it does not pretend to be exhaustive, it presents a cross-view of progresses realized in three major domains : solidification, solid state reactivity, including radiation effects, and plasticity.

We hope to convey the reader our conviction that the analytical and numerical techniques developed in the past few years have an enormous potential in the field of Materials Science, and that a knowledge of microscale processes is a prerequisite to an effective modelling at macroscale.

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