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Autore	Diaz J. I.
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Sommario/riassunto	The behavior of materials at the nanoscale is a key aspect of modern nanoscience and nanotechnology. This book presents rigorous mathematical techniques showing that some very useful phenomenological properties which can be observed at the nanoscale in many nonlinear reaction-diffusion processes can be simulated and justified mathematically by means of homogenization processes when a certain critical scale is used in the corresponding framework.