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Titolo	The Periodic Unfolding Method : Theory and Applications to Partial Differential Problems // by Doina Cioranescu, Alain Damlamian, Georges Griso
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Soggetti	Differential equations, Partial Mechanics, Applied Partial Differential Equations Theoretical and Applied Mechanics
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Nota di contenuto	Unfolding operators in fixed domains -- Advanced topics for unfolding -- Homogenization in fixed domains -- Unfolding operators in perforated domains -- Homogenization in perforated domains -- A Stokes problem in a partially porous medium -- Partial unfolding: a brief primer -- Oscillating boundaries -- Unfolding operators: the case of "small holes" -- Homogenization in domains with "small holes" -- Homogenization of an elastic thin plate -- The scale-splitting operators revisited -- * Strongly oscillating nonhomogeneous Dirichlet condition -- Some sharp error estimates.
Sommario/riassunto	This is the first book on the subject of the periodic unfolding method (originally called "éclatement périodique" in French), which was originally developed to clarify and simplify many questions arising in the homogenization of PDE's. It has since led to the solution of some open problems. Written by the three mathematicians who developed the method, the book presents both the theory as well as numerous examples of applications for partial differential problems with rapidly oscillating coefficients: in fixed domains (Part I), in periodically perforated domains (Part II), and in domains with small holes generating a strange term (Part IV). The method applies to the case of

multiple microscopic scales (with finitely many distinct scales) which is connected to partial unfolding (also useful for evolution problems). This is discussed in the framework of oscillating boundaries (Part III). A detailed example of its application to linear elasticity is presented in the case of thin elastic plates (Part V). Lastly, a complete determination of correctors for the model problem in Part I is obtained (Part VI). This book can be used as a graduate textbook to introduce the theory of homogenization of partial differential problems, and is also a must for researchers interested in this field.
