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	Nota di contenuto	Some nonconvex shape optimization problems -- An introduction to the homogenization method in optimal design -- Shape analysis and weak flow -- Optimal shape design by local boundary variations.
	Sommario/riassunto	Optimal Shape Design is concerned with the optimization of some performance criterion dependent (besides the constraints of the problem) on the "shape" of some region. The main topics covered are: the optimal design of a geometrical object, for instance a wing, moving in a fluid; the optimal shape of a region (a harbor), given suitable constraints on the size of the entrance to the harbor, subject to incoming waves; the optimal design of some electrical device subject to constraints on the performance. The aim is to show that Optimal Shape Design, besides its interesting industrial applications, possesses nontrivial mathematical aspects. The main theoretical tools developed here are the homogenization method and domain variations in PDE. The style is mathematically rigorous, but specifically oriented towards applications, and it is intended for both pure and applied

mathematicians. The reader is required to know classical PDE theory and basic functional analysis.