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Titolo	Variational Methods in Nonlinear Field Equations : Solitary Waves, Hylomorphic Solitons and Vortices / / by Vieri Benci, Donato Fortunato
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ISBN	3-319-06914-4
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (266 p.)
Collana	Springer Monographs in Mathematics, , 1439-7382
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Soggetti	Differential equations, Partial Mathematical analysis Calculus Mathematical physics Partial Differential Equations Analysis Mathematical Physics
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1 The general principles -- 2 Solitary waves and solitons: abstract theory -- 3 The nonlinear Schrödinger equation -- 4 The nonlinear Klein-Gordon equation -- 5 The Nonlinear Klein-Gordon-Maxwell equations -- 6 The nonlinear Schrödinger-Maxwell equations -- 7 The nonlinear beam equation -- 8 Vortices -- 9 Appendix.
Sommario/riassunto	The book analyzes the existence of solitons, namely of finite energy solutions of field equations which exhibit stability properties. The book is divided in two parts. In the first part, the authors give an abstract definition of solitary wave and soliton and we develop an abstract existence theory for hylomorphic solitons, namely for those solitons which minimize the energy for a given charge. In the second part, the authors apply this theory to prove the existence of hylomorphic solitons for some classes of field equations (nonlinear Klein-Gordon-

Maxwell equations, nonlinear Schrödinger-Maxwell equations, nonlinear beam equation,..). The abstract theory is sufficiently flexible to be applied to other situations, like the existence of vortices. The books is addressed to Mathematicians and Physicists.