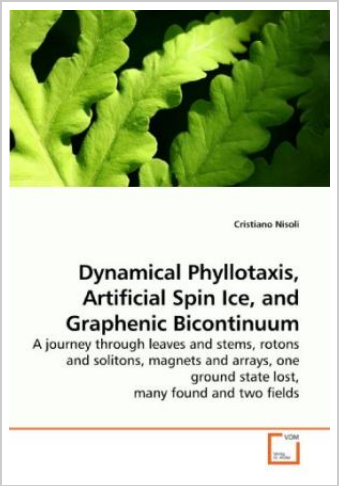




# Dynamical Phyllotaxis, Artificial Spin Ice, and Graphenic Bicontinuum

By Cristiano Nisoli

VDM Verlag Okt 2009, 2009. Taschenbuch. Book Condition: Neu. 220x150x6 mm. Neuware - Reflecting the somehow eclectic nature of the author''s interests, this book explores three - if not more - separated topics, at the forefront of their fields. After demonstrating in an experimental magnetic cactus the same phyllotactic patterns that occur in leaves on a stem, spines on a cactus, or scales on a pine cone, Chapter I shows that the dynamics of phyllotaxis generates new physics beyond botany: rotons and a large family of dynamically stable novel topological solitons. This 'dynamical phyllotaxis' is likely to be relevant e.g. for conduction in Wigner crystals in cylindrical geometries, energy localization in protein alpha helices, or solitons in DNA. Chapter II reports on the first artificial realization at the nanoscale of spin ice, discusses its relationship with well known vertex models and shows how this athermal system can be described by an effective thermodynamics. Chapter III focuses our attention to carbon nanostructures and introduces a two-field formalism that can fully describe their electromechanical properties at small deformations, and therefore explains and extends a previously disparate accumulation of analytical and computational results. 92 pp. Englisch.



### *Reviews*

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