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Results and discussion; 1.4.4 Alloying; 1.4.5 Conclusions  
Bibliography  
1.5 Growth of decagonal Al-Co-Ni and Al-Co-Cu quasicrystals by the Czochralski method; 1.5.1 Introduction; 1.5.2 Czochralski growth; 1.5.3 Al-Co-Ni quasicrystals; 1.5.4 Al-Co-Cu quasicrystals; 1.5.5 Summary; Bibliography; 2 Structure and mathematical modelling; 2.1 Decagon clusters in perfect and random decagonal structures; 2.1.1 Introduction; 2.1.2 The framework of cluster coverings; 2.1.3 Random cluster covering model; 2.1.4 Unit-cluster approach for Penrose-type structures; 2.1.5 Summary; Bibliography; 2.2 Coverings in the structure of quasicrystals  
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2.2.2 Tiling models and the triangle tiling; 2.2.3 From tiling to covering; 2.2.4 Windows for the Delone covering of the tiling; 2.2.5 Colouring the tiles in the triangle tiling; 2.2.6 Covering for icosahedral tilings; 2.2.7 Summary; Bibliography; 2.3 Wavelets in the structure and physics of quasicrystals; 2.3.1 Introduction; 2.3.2 Haar Wavelets for dyadic and Fibonacci tilings; 2.3.3 Haar wavelets on the triangle and the Penrose tiling; 2.3.4 Haar wavelets for the icosahedral Danzer tiling  
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2.5.6 Long-range fluctuations

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## Sommario/riassunto

Quasicrystals form a new state of solid matter beside the crystalline and the amorphous. The positions of the atoms are ordered, but with noncrystallographic rotational symmetries and in a nonperiodic way. The new structure induces unusual physical properties, promising interesting applications. This book provides a comprehensive and up-to-date review and presents most recent research results, achieved by a collaboration of physicists, chemists, material scientists and mathematicians within the Priority Programme "Quasicrystals: Structure and Physical Properties" of the Deutsche Forschungsgemeinschaft.

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