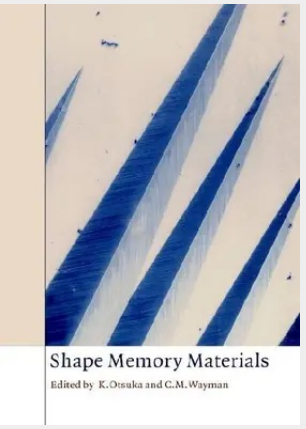
Otsuka / Wayman

Shape Memory Materials

Shape memory materials are fascinating materials, with potential for application as 'smart materials' and also as new functional materials. This book presents a systematic and up-to-date account of all aspects of shape memory materials, from fundamentals to applications. Starting from the basic principles of the martensitic transformation, on which the shape memory effect and the superelasticity of alloys are based, the mechanisms of the two phenomena are clearly described, together with possible applications. The characteristics, fabrication techniques and thermomechanical treatment of various shape memory alloys are described in detail, with special emphasis on Ti-Ni and Ti-Ni-X (with X being Cu, Fe etc.) alloys. The book then describes various applications and design principles, for example in actuators, medical applications and as smart materials. The book contains chapters on shape memory ceramics and polymers as well as shape memory alloys, making the book a comprehensive account of the field.

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