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Amorphous magnetism and magnetic materials: Bibliography 1950-1976

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In this bibliography we have collected information on basic and applied research on amorphous magnetism during 25 years of its development. Only a selection of the references are commented on, but lists of materials and authors are added which enable other relevant references to be readily identified.

1. Introduction

Since their discovery and the earliest attempts to explain their properties theoretically (A.I. Gubanov, *Fiz. Tverd. Tela* 2 (1960) 502), amorphous magnetic materials were produced in many ways including rapid cooling of the liquid or the vapour, sputtering or implantation with inert gas ions, as well as electroless and electro-chemical deposition from solution. Although their properties still remain somewhat puzzling despite all efforts made to understand them, these materials nevertheless promise to prove applicable, e.g. for cheap bubble domain memory devices for computers. Other applications will most probably use combinations of such characteristics as magnetic softness, very good mechanical strength, relatively high electrical resistivity and peculiar chemical properties (corrosion, catalysis), which are the subject of current investigation. Furthermore, being amorphous, some of these materials are highly radiation-insensitive making them suitable for nuclear apparatus. Amorphous magnetics are also of importance for a deeper understanding of phase transition, transport and other processes in solids and liquids.

This bibliography contains all works that we could identify on amorphous magnetism (ferromagnetism, antiferromagnetism, ferrimagnetism, speromagnetism, etc.) including Conference Proceedings and other reports. These last should be considered only as an indication of which authors are working in this field. We have also recorded other material related to amorphous magnetism such as unpublished conference and school reports. Since magnetism is our chief concern, we omitted papers dealing solely with the structure of non-crystalline materials. We have restricted ourselves to magnetics having an amorphous, i.e. liquid-like, or liquid structure, so that disordered crystalline alloys, and particularly crystalline spin glasses (except for spin glasses of amorphous structure) are outside the scope of this bibliography. A few exceptions have been made, however, for papers of special relevance to the subject in question.

Our bibliography is divided into several sections, the Section 2 contains the references to all experimental papers; the materials investigated are listed separately (Section 6). Theoretical papers are compiled in Section 3. Conference papers are arranged separately at the ends of Sections 2 and 3. Work, both experimental and theoretical, dealing with the controversial question of ferromagnetism in liquids, is referred to in Section 4. Review articles can be found in Section 5. The papers are arranged chronologically and, within each year, alphabetically. An Appendix (Section 8) lists references which came to our attention at the time of going to press. An author index is added (Section 7). This bibliography contains altogether 773 references.

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2. Experiment

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and other papers: 8101, 8200, 8207.

6. Material list

TM* and TM with impurities

* TM = transition metal.

TM–TM

TM–RE†

† RE = rare earth.

TM–B

TM–P

TM–P–B alloys

TM–P–C alloys

TM–P–Si alloys

TM–P–Pd

TM–P–Pt

TM–B–C

TM–B–Si

TM–C

TM–Si

TM–Pd–Si

TM–Halides

TM–O–glass

TM–P–O–glass

TM–RE–O

TM–other elements

RE–other elements

Other materials

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8. Appendix

8.1. Supplement for 1973

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8.4 Note

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