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## Investigation of defects in Fe3Al-based alloys by PAS

By František Lukác

LAP Lambert Academic Publishing Okt 2012, 2012. Taschenbuch. Book Condition: Neu. 220x150x6 mm. This item is printed on demand - Print on Demand Neuware - Positron annihilation spectroscopy is non-destructive method for studying defects in solid state materials. Binary alloys of iron and aluminium are industrially interesting materials and are suitable candidate for studying the behavior of intermetallics with vacancy concentrations several orders higher than in pure metals. Measuring of the positron lifetime enables to classify defects type, volume size and concentration. Measuring of coincidence Doppler broadening of annihilation peak carries information about chemical environment of a positron trapped at the defect. These measurements are supported by quantum-mechanics theoretical calculations which help us to interpret the measured data. Mechanical properties were studied simultaneously by the measuring of Vickers microhardness and compared with the positron annihilation spectroscopy results. The correlation of defect concentration with mechanical properties was observed in Fe-Al alloys with various composition and after various thermal treatments. 104 pp. English.



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