Characterization of nanophase precipitation in a metastable β titanium-based alloy by electrical resistivity, dilatometry and neutron diffraction

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Metastable β Ti–6Mo–5Ta–4Fe (wt.%) alloy was synthesized by cold crucible levitation melting and then quenched in water from the β-phase field. In order to investigate the transformation sequence on heating, thermal analysis methods such as electrical resistivity, dilatometry and neutron thermodiffraction were employed. By these methods, the different temperatures of transition were detected and solute partitioning was observed in the β matrix during omega and α nanophase precipitation.