MAGNETORESISTANCE IN SEMICONDUCTOR-FERRITE STRUCTURE

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Semiconductor-ferrite structures, formed by means of tight contact between InSb monocrystal (magnetoresister–MR) and ferrite substrate have been investigated in this work. The oriented $Mn_xZn_{1-x}Fe_2O_4$ monocrystal substrates, Mn-Zn polycrystal ferrite and YIG films epitaxially grown on GGG surface from liquid-phase (LPE) were used. The substrate influence on the VAC and the ΔU (ΔR) increases depending on the magnetic field (B) for different I_0. Substrate magnetization direction is defined by the anisotropy of crystal growth. Approximatly two fold increase of susceptibility depending on the field γ=157%/Tl (0-0.15 Tl) and 64%/Tl (0.15-0.5 Tl) at I_0=160 mA was obtained. The outward magnetic field screening was achieved by placing MR in the ferrite Mn-Zn grooves. As a result the ΔU independence of the outward field and N-like ΔU=f(B) characteristic were observed.

9.7 cm

13.4 cm

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