

The influence of the magnetic configuration on the charge current generated by the temperature gradient in the double planar ferromagnetic tunnel junctions

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The charge current generated by the finite temperature gradient applied to the double planar tunnel junctions with the ferromagnetic external electrodes and the central ferromagnetic layer is investigated in the spin polarized free-electron-like one-band model. The tunnel current induced both by the temperature gradient and the bias voltage is also analysed. Three different orientations of the magnetic moments in the ferromagnetic components of the junction are considered and the influence of the magnetic configurations on the tunnel currents is investigated. It has been shown that this influence can be enhanced in the junctions with the special thicknesses of the central layer due to the resonant electron tunnelling by the resonant states. The investigated tunnel currents are also sensitive to the central layer thickness, the average temperature of the junction, the barrier height, the spin splitting of the electron bands in the electrodes and the bias voltage applied to the junction.