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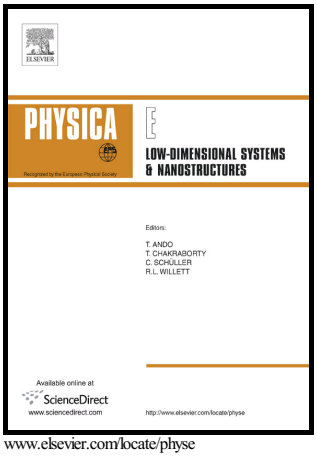

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Atousa Ghanbari, Mahdi Esmaeilzadeh, Nezhat Pournaghavi

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Thermally induced pure and spin polarized currents in a zigzag silicene nanoribbon based FM/normal/AFM junction

Atousa Ghanbari[1], Mahdi Esmaeilzadeh[2], and Nezhat Pournaghavi

Department of Physics, Iran University of Science and Technology, Narmak, Tehran 16844, Iran

We study thermally induced spin resolved current in a zigzag silicene nanoribbon when the left and right leads are respectively affected by ferromagnetic (FM) and anti-ferromagnetic (AFM) exchange fields (FM/normal/AFM junction). We show that pure spin current is generated due to the leads temperature difference and the junction can work as a spin Seebeck diode. The pure spin current can be easily controlled by a perpendicular electric field and the junction, in this case, can work as a spin current switch. In addition, we study the effect of a single vacancy and show that the vacancy can slightly destroy the pure spin current property which leads to induce a weak spin polarized current. In the presence of both vacancy and electric field, current with high and tunable spin polarization can be achieved.

Key Words: pure spin current, vacancy, spin polarization, pure spin diode and pure spin switch.

[1]E-mail: at.ghanb@gmail.com
[2]E-mail:mahdi@iust.ac.ir