

# Thermoelectric properties of doped zigzag silicene nanoribbons

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Electric and thermoelectric properties of silicene nanoribbons doped with either non-magnetic or magnetic impurity atoms are investigated theoretically for both antiparallel and parallel orientations of the edge magnetic moments. Inclusion of different impurities (magnetic or non-magnetic) also considerably modifies spin density distributions. Ground state of pristine nanoribbon corresponds to antiparallel spin orientation so the total magnetic moment is zero. Appropriately arranged impurities can lead to a net magnetic moment and thus also to spin thermoelectric effects.

Spin density distributions as well as transport parameters were obtained by use of the *ab-initio* numerical methods based on the density functional theory. The results of calculations show that the spin thermopower can be considerably enhanced by the impurities.