

ABSTRACT

A force generating apparatus is configured to induce a force on at least a portion of objects of interest within a first channel system between a first point and a second point, where the average force comprises a non-zero component directed from the first point towards the second point. The magnitude of the associated change in the thermodynamic properties of the objects of interest between two given points within the first channel system is a function of the relevant properties of the channel system, such as the shear stress coefficient or the resistivity of the channel system to bulk flow of objects of interest. A second channel system can comprise a first point and a second point, and the second point of the second channel system can be diffusively coupled to the second point in the first channel system. The relevant properties of the second channel system can be configured to be different to the relevant properties of the first channel system. The difference in the magnitude of the change of thermodynamic properties between the first and second points in the first channel system and the second channel system can be employed to increase the pressure of objects of interest in a second reservoir relative to a first reservoir. A pressure modification apparatus and method can be used to convert thermal energy into useful energy, such as mechanical work or electricity, for example.