Flat heat pipes can enhance electrocaloric cooling by improving heat dissipation to the air

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Rujun Ma, et al., wrote an article entitled "Highly efficient electrocaloric cooling with electrostatic actuation" published in Science (1). Fig.1(A2) shows EC device architecture where two Al plates are used for heat sink/source (1). In order to improve the cooling capability, two Al plates should be replaced with two flat heat pipes in EC device architecture (2). A heat pipe is a heat-transfer device that combines the principles of both thermal conductivity and phase transition to effectively transfer heat between two solid interfaces (3). The performance of heat dissipation to the air determines the cooling capability. The flat heat pipes should drastically improve heat dissipation to the air. In other words, flat heat pipes can enhance electrocaloric cooling by improving heat dissipation to the air

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References:

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