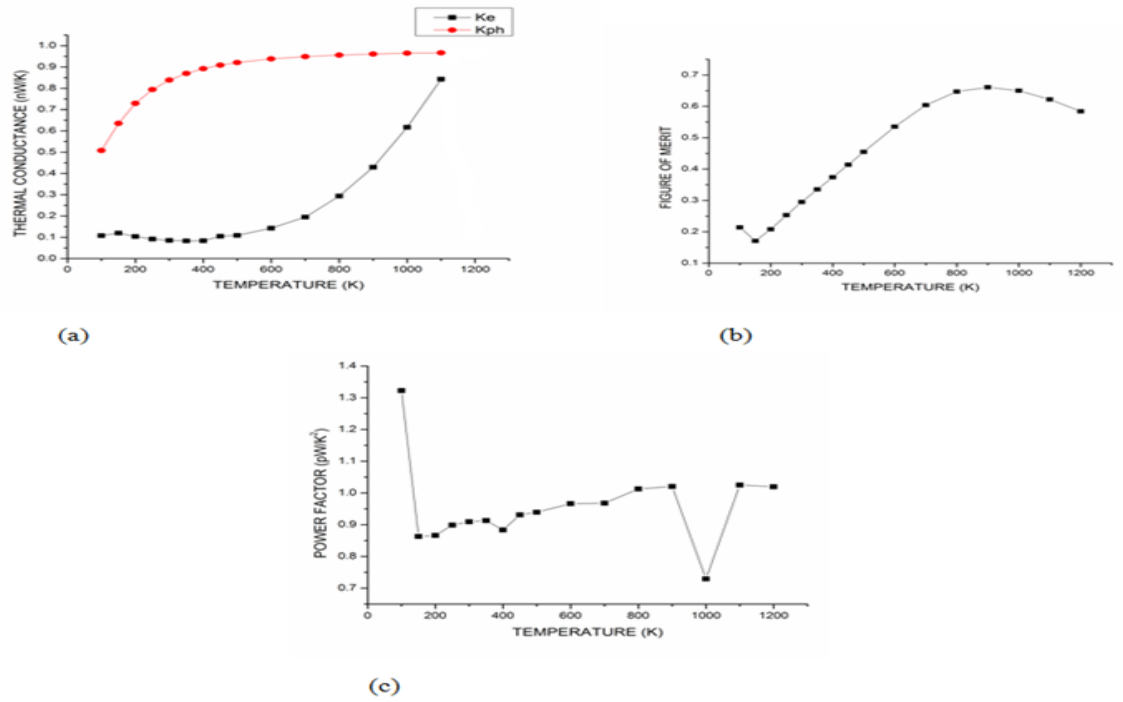

Fig.13 temperature dependence of (a) Thermal conductance, (b) Power Factor and (c) figure of merit for the rectangular single pore ASiNR structure

VII. CONCLUSION

In summary, we have investigated the influence of different pore shapes and its associated position on the thermoelectric performance of ASiNR-NP devices. Nanopores of different shapes i.e. circular, rectangular, triangular and rhombus have been introduced at varying positions of the nano structure so as to study their effect on the thermoelectric figure of merit. By optimizing the pore parameters, we have been able to achieve higher Figure of merit, which is approximately three times higher than pristine ASiNR. Further, the effect of pore passivation is observed, which has been successfully able to enhance ZT in case of Rectangular pores. Thus, our work extends the idea towards achieving better thermoelectric devices by optimal pore efficiency.

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