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Two phase flow simulation of conjugate natural convection of the nanofluid in a partitioned heat exchanger containing several conducting obstacles

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Highlight

- By increasing the thermal conductivity ratio (K_r), the heat transfer rate enhances.
- At high *Ra*, type and size of the nanoparticles have a minor impact on the $\overline{Nu}_{tot}$.
- At high *Ra*, orientation of the conductive partition has a significant impact on the $\overline{Nu}_{tot}$.
- At low *Ra*, by dividing the conductive obstacle into the small parts, the $\overline{Nu}_{tot}$ decreases.
- At low Ra, distribution of Al_2O_3 and TiO_2 nanoparticles is fairly non-uniform.

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