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CONSTRUCTAL DESIGN OF TUBE ARRANGEMENTS FOR HEAT TRANSFER TO NON-NEWTONIAN FLUIDS

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**Highlights**

- Constructal design is employed in association with Response Surface methodology to search for optimal spacing between two aligned tubes of elliptical cross-section subjected to forced heat convection from pseudoplastic fluids.
- A great enhancement in heat transfer with the decrease of the power law index has been highlighted, confirming that shear thinning is a key parameter for heat transfer increase using non-Newtonian fluids.
- All the results here obtained emphasize that given a flow system freedom to morph, i.e. allowing changes in its degrees of freedom, it will improve the system performance in heat removal and fluid flow.

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