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**Numerical investigation on heat transfer of supercritical carbon dioxide in a vertical tube under circumferentially non-uniform heating**

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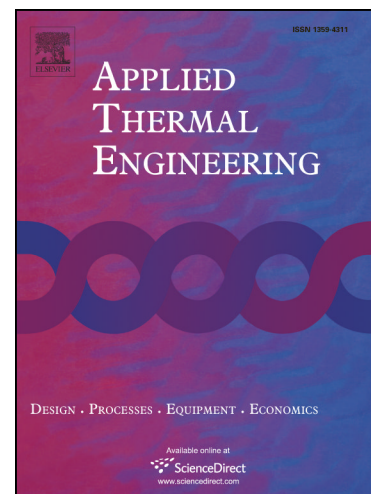
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**Highlights:**

1. Heat transfer of supercritical carbon dioxide with non-uniform heating is simulated.
2. Difference in localized heat transfer between top and bottom generatrix is large.
3. Mokry correlation and Gupta correlation can be extended for non-uniform heating.
4. Heat transfer performance is closely related to local thickness of viscous sublayer.
5. A new heat transfer correlation for non-uniform heating is proposed.

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