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The heat transfer optimization of conical fin by shape modification

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Graphic Abstract

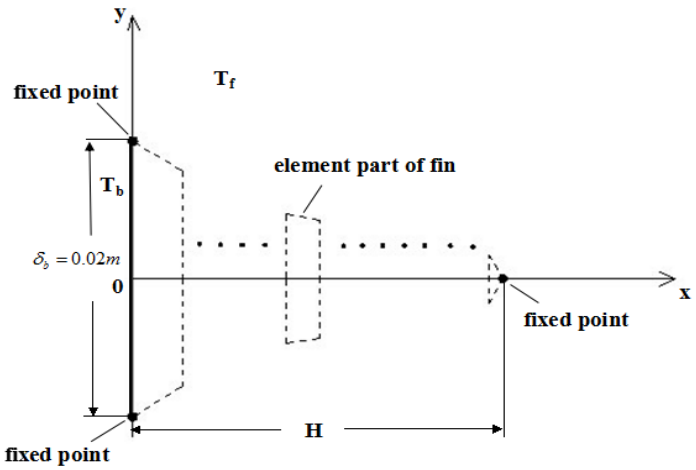

Figure 1 The sketch of fin dividing

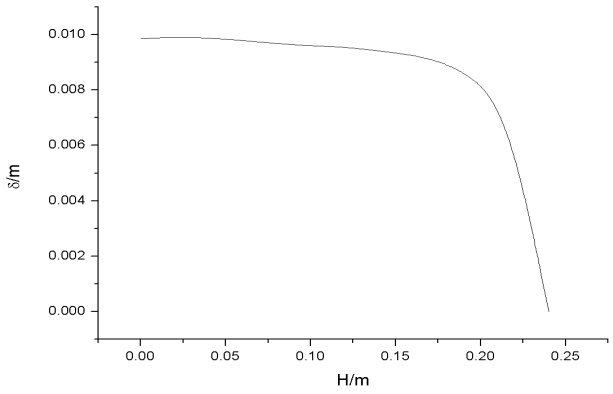

Figure 2 The optimized conical fin geometry

Referring to the mechanism of building construction, the stepping genetic algorithm is proposed for geometric optimization of conical fin, and the heat transfer rate of the fin is treated as the objective function. The conical fin is divided into finite elements which have different generatrix slope. Based on the actual condition of differential element of the fin, the heat transfer conduction equation is solved step by step. Every differential element optimization begins after the below one has been constructed. Finally, the geometry of the conical fin is obtained by ensuring every divided element of the fin has the

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