

## A New Correlation for the Onset of Nucleate Boiling Heat Flux under an Impinging Planar Water Jet

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**Abstract** - A new comprehensive correlation is presented to predict the onset of nucleate boiling heat flux in the stagnation region of a planar jet impingement boiling on a hot flat surface. The rate of heat transfer is calculated using a similarity solution approach and the effect of the main parameters of water jet, i.e. jet sub-cooling and jet velocity on the heat flux is investigated. Then the heat flux is correlated for the wide range of both impinging velocity and liquid jet temperature, by using the least square fitting method. A comparison of the obtained results of the correlation is made with a previous published model in a special case and good agreement is reported.

**Keywords:** Onset of nucleate boiling, Jet impingement boiling, Stagnation flow, Least square method