

Public Abstract

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Title:Investigation into the Pool-boiling Characteristics of Gold Nanofluids

As the technological trend of increasing speed and size reduction of components continues, the ability to remove high heat fluxes is becoming an ever more critical area of research. Among the topics of research in this area, the use of nanofluids as a heat transfer fluid has drawn much attention recently. Within the last five years work investigating the pool-boiling of these fluid has increased dramatically. However, the existing literature on the subject shows some varying results that need further investigation to interpret. An experimental study was performed investigating the behavior of gold-water nanofluids during pool-boiling. In this study, it was seen that the boiling of nanofluids created a decrease in the heat transfer; however, a significant increase in the maximum heat flux was also seen. It was then determined that these changes were a result of a change in the surface created by deposition of the particles, not by the nanofluids themselves. From this research, a new and promising method for creating enhanced boiling surfaces was found.