

rectangular configuration which needs the highest coolant flow rate among all the configurations compared.

The above analysis provides an insight on the impact of the material and the shape of the channel to effectively design actively cooled panel.

References

- [1] Lorenzo Valdevit, Natasha Vermaak, Frank W. Zok and Anthony G. Evans, "A materials selection protocol for light weight actively cooled panels," *Journal of applied mechanics*, vol. 75, pp. 061022-1 – 061022-15, 2008.
- [2] Tresa M. Pollock, Sammy Tin, "Nickel-Based Superalloys for Advanced Turbine Engines: Chemistry, Microstructure, and Properties," *Journal of propulsion and power*, (22) No. 2, pp. 361-374, 2006.
- [3] David L. Ellis, "GRCop-84: A High-Temperature Copper Alloy for High-Heat-Flux Applications", NASA/TM—2005-213566, 2005.
- [4] www.specialmetals.com INCONEL® alloy X-750 (UNS N07750/W. Nr. 2.4669)
- [5] *Heat and Mass Transfer* by Frank P. Incropera, David P DeWitt, Fifth edition, John Wiley & Sons, Inc., pp.141
- [6] Robert D. Quinn and Leslie Gong, "Real time aerodynamic heating and surface temperature calculation for hypersonic flight simulations," NASA technical memorandum, 4222, 1990.