



Heat Transfer Gallery

C. T. Avedisian¹. At the International Mechanical Engineering Congress and Exhibition (IMECE) in Atlanta last November, a technical session was offered entitled 'Heat Transfer Picture Gallery' (HTPG) at which photographs were displayed that depicted various processes occurring in the presence of temperature gradients. The turnout was notable for the attention it drew from spectators who browsed through the photo displays, like in an art gallery. The session attracted 25 photo displays and they were evaluated by a distinguished panel of engineers based on subjective judgments of the visual impact of the photographs and the original contribution they were thought to make to the understanding of a thermal process. Ten of the displays that received the highest ratings are published here in this special section of the ASME JOURNAL OF HEAT TRANSFER entitled 'Heat Transfer Gallery.'

The motivation for publishing these photographs is to draw attention to, and illustrate, the aesthetic qualities of thermal processes. The accompanying explanatory text for each photo display is kept to a minimum to focus attention on the visualization. The photographs include phenomena of natural and forced convection, boiling, and combustion. Reproductions in color are included to enhance the visualizations. It is hoped that the readership of the ASME JOURNAL OF HEAT TRANSFER enjoys browsing through this collection of color photographs.

The HTPG will again be offered at the upcoming IMECE to be held in Dallas in November 1997 (see an announcement in the February 1997 issue of the ASME JOURNAL OF HEAT TRANSFER). Furthermore, the opportunity may again be available for publication in the ASME JOURNAL OF HEAT TRANSFER of the best photographs displayed at the HTPG. There will be

a strong preference for original contributions not previously published.

Publication of this 'Heat Transfer Gallery' would not have been possible without the strong support of the Senior Editor, Dr. Jack Howell. Additionally, Dr. Ray Viskanta (past editor) and the members of the Executive Committee of the Division of Heat Transfer, including Drs. Richard Buckius, Soung Cho, Ralph Greif, and Gus Plumb, who were instrumental in supporting the idea of this Heat Transfer Gallery for the ASME JOURNAL OF HEAT TRANSFER. Finally, thanks are due to ASME for defraying the cost of the color reproductions.

References

- Ball, K. G., Song, M., Gomom, M., Silva, M. W., Taleff, E. M., Powers, B. M., and Bergman, T. L., 1996, "Canister Filling With a Molten Glass Jet," *Bulletin of the American Physical Society* Vol. 41, p. 1749.
- Chyu, M. K., Ding, H., Downs, J. P., Van Sutendael, A., and Seochting, F. O., 1997, "Determination of Local Bulk Temperature for Heat Transfer Using Transient Liquid Crystals Technique," to be presented at the International Gas Turbine and Aeroengine Congress and Exposition, Orlando, June.
- Dhir, V. K., 1972, "Viscous Hydrodynamic Instability Theory of the Peak and Minimum Pool Boiling Heat Fluxes," Ph.D. thesis, University of Kentucky, Lexington, Kentucky.
- Liakopoulos, A., Huang, X., Blythe, P. A., and Simpkins, P. G., 1991, "Buoyancy Driven Motions due to a Vertical Array of Heat Sources," *HTD-Vol. 171, Heat Transfer in Electronic Equipment*, A. Ortega et al., eds., p. 63.
- Liu, Y. H., and Zumbrennen, D. A., 1996, "Emergence of Fibrillar Composites Due to Chaotic Mixing of Molten Polymers," *Polymer Composites*, Vol. 17, pp. 187-197.
- Presser, C., Gupta, A. K., Avedisian, C. T., and Semerjian, H. G., 1990, "Fuel Property Effects on the Structure of Spray Flames," *23rd Symposium (International) on Combustion*, The Combustion Institute, pp. 1361-1367.
- Mukherjee, D. K., Prasad, V., Dutta, P., and Yuan, T., 1996, "Liquid Crystal Visualization of the Effects of Crucible and Crystal Rotation on Cz Melt Flow," *Journal of Crystal Growth*, Vol. 169, pp. 136-146.
- Zumbrennen, D. A., Miles, K. C., and Liu, Y. H., 1996, "Auto-Processing of Very Fine-Scale Composite Materials by Chaotic Mixing of Melts," *Composites: Part A*, Vol. 27A, pp. 37-47.

¹ Sibley School of Mechanical and Aerospace Engineering, Cornell University, Ithaca, New York, 14853-7501.