



# Photogallery

The seventh "Heat Transfer Photogallery" was sponsored by the K-22 Heat Transfer Visualization Committee for the 2002 International Mechanical Engineering Congress and Exhibition (IMECE) in New Orleans, Louisiana, held November 17–22, 2002. Out of the total 13 presented entries, the peer-reviewed selection process identified the top seven for publication in the *ASME Journal of Heat Transfer* August issue of 2003. Ballots to choose up to best eight entries were solicited for those who participated and visited the Photogallery session at 2002 IMECE. The total twenty-six ballots were returned and the order of the presentation in this publication is consistent with the rankings of the final seven based on the ballot.

The purpose of publishing these photographs is to draw attention to the innovative features of optical diagnostic techniques and aesthetic qualities of thermal processes. To focus on visualization, the text is kept to a minimum and further details should be found through the listed references or directly from the authors. The photographs include: (1) Optically-sectioned  $\mu$ -PIV measurements using CLSM [1], (2) Behavior of aqueous lithium-bromide drops in horizontal tube banks [2], (3) Low Bond number two-phase flow regime transition from slug to annular wavy flow in a microchannel, (4) Microscale bubble nucleation from an artificial cavity in single microchannel, (5) Thermal transport during nanoscale machining by field emission of electrons from carbon nanotubes [3], (6) Visualization of ebullient dynamics in surfactant solutions [4], and (7) Heat and mass transfer in a peristaltic micro mixer [5].

My wish is that the journal readers enjoy viewing these collections, acquire knowledge of the state-of-the-art features potentially applicable for their own research, and also promote their participation in 2003-IMECE Photogallery session presentation (refer to the Call for Photogallery for 2003-IMECE announced in this volume).

## References

- [1] Park, J. S., Kihm, K. D., and Allen, J. S., 2002, "Three-Dimensional Microfluidic Measurements Using Optical Sectioning By Confocal Microscopy: Flow Around a Moving Bubble in a Micro-Channel," IMECE Paper No. 2002-32790.
- [2] Killion, J. D., and Garimella, S., 2003, "Gravity-Driven Flow of Liquid Films and Droplets in Horizontal Tube Banks," *Int. J. Refrig.*, in press (accepted).
- [3] Wong, B. T., Mengüç, M. P., Vallance, R. R., and Rao, A., 2003, "Modeling of Energy Transfer for Carbon Nanotube-Based Precision Machining," Proceedings of the Annual Meeting American Physical Society (APS) March Meeting 2003, Austin, TX, March 3–7, 2003.
- [4] Zhang, J., and Manglik, R. M., 2003, "Pool Boiling Heat Transfer in Aqueous Solutions of Cationic Surfactants," Paper No. TED-AJ03-248.
- [5] Beskok, A., and Warburton, T. C., 2001, "An Unstructured H/P Finite Element Scheme for Fluid Flow and Heat Transfer in Moving Domains," *J. Comput. Phys.*, **174**, pp. 492–509.

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