

**NAMBE 2003, the 21st North American Conference on Molecular Beam Epitaxy
September 28-October 2, 2003
Keystone, Colorado**

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Conference Chairman*

The 21st North American Conference on Molecular Beam Epitaxy was held in Keystone, Colorado, from September 28-October 2, 2003. There were 177 attendees at the conference, and 19 different companies exhibited their new products to the MBE community. The conference attendees came from all over the world, including North America (USA (144), Canada (6), and Mexico (1)), Europe (11), Asia (13), and Australia (2). The technical program consisted of 50 oral presentations and 23 poster presentations, including 5 late news presentations and 3 late news posters. In addition to the technical sessions, the last day of the conference was devoted to three informal workshops designed to facilitate interaction between the participants: Production of Next-generation MBE Materials (Chairman: Tom Block, Northrop Grumman Space Technology), Long Wavelength Optoelectronics (Chairman: Yong-Hang Zhang, Arizona State University), and MBE for Quantum Information (Co-chairmen: Nitin Samarth, Penn State University and Richard Mirin, NIST).

Technical highlights at the conference included long wavelength VCSELs grown on GaAs that operated at 1460 nm at room temperature, using an InGaAsNSb quantum well active region (Mark Wistey, Stanford University), high Curie temperature (160 K) GaMnAs films (Richard Campion, University of Nottingham), second-harmonic generation using epitaxially grown, periodically poled GaN (Hock Ng, Lucent), the real-time strain measurement of metamorphic buffer layers using a multibeam optical stress sensor (Candace Lynch, Brown University), and a comparison of arsenic- and phosphorous-based metamorphic buffers for InP HBT and HEMT applications (Dimitri Lubyshev, IQE). Wistey and Lynch were the two recipients of Outstanding Student Presentation Awards.

The Thursday workshops were a follow-up to the workshops held at NAMBE-18 in 1999 (Banff, Alberta, Canada). The three workshops provided insight into both short- and long-term future directions for MBE. The workshop on Next-generation MBE Materials featured invited talks on a wide variety of topics, including GaN, antimonides, solar cells, *in situ* monitoring and control, absolute composition standards, and phosphorous maintenance safety. The Long Wavelength Optoelectronics workshop had two sessions, one on near infrared (NIR) emitters and one on mid-wavelength IR (MWIR) emitters. Topics at these sessions included MBE growth of GaInNAsSb and other dilute nitrides, GaAsSb, InAs quantum dots, THz and antimonide-based quantum cascade lasers on GaAs substrates, and IV-VI lead salt lasers. The Quantum Information workshop included an introduction to the topic by Michael Flatté from the University of Iowa and invited talks covering several of the proposed quantum computing systems (self-assembled quantum dots, electron spins in quantum dots, oxide-semiconductor

materials, and superconducting Josephson junctions) in which MBE is expected to play a role.

The Tuesday night banquet was held at the Keystone Stables. After dinner, line dancing ensued. At the banquet, the 1st Annual MBE Innovator Award was presented to David Miller (Penn State University) by Marlin Braun (Veeco). The award citation reads, "For the invention and development of arsenic capping and the valved arsenic cracker."

Several people worked hard to ensure that the conference was a good experience for all the attendees. Conference Manager Wendy Ortega McBride and her assistant, Camille Hoffman, made certain that everything at the conference ran smoothly. Program Chairman Archie Holmes from the University of Texas, Austin and the other program committee members (Rod Beresford, Tom Block, Brian Bennett, Norman Chang, Bill Goodhue, James Gupta, Shane Johnson, Ron Kaspi, Dan Mars, Joanna Mirecki-Millunchick, Hock Ng, and Gary Wicks) read and evaluated more than 75 abstracts, resulting in a very strong technical program. Proceedings Editor Bill Goodhue from the University of Massachusetts at Lowell did an outstanding job of encouraging paper submissions and suggesting referees for the conference proceedings, which are scheduled to be published in the March/April issue of JVST B.

The next NAMBE conference, NAMBE-22, will be held be chaired by Tony SpringThorpe from the National Research Council, Canada. The conference will be in Banff, Alberta, Canada from October 15-22, 2004. Additional information about this conference can be found at the new NAMBE website, www.nambe.info.