

WINNER OF THE BEN STURGEON AWARD 2006

The Ben Sturgeon Award for 2006 has been awarded to Grant Bourhill, Diana Kean, Jonathan Mather and Heather Stevenson of Sharp Laboratories of Europe. The award was presented to them at the Chapter AGM on 5 April 2006 by Ian Sage, the retiring UK Chapter Chair.

Diana Kean graduated from Ohio State University, subsequently coming to the United Kingdom to complete a DPhil at Oxford under Dr Steve Elston. She joined Sharp Laboratories in 1995 and worked on a collaborative ferroelectric project. During this time, she spent one month in Japan transferring the technology to Sharp. Diana was recognised for her achievements with the BLCS Young Scientist Award in 1997. Since that time, she has been the technical lead in low-power LC modes, fast modes for LCTV and for the Sharp dual-view display technology. In 2005, she was the recipient of a Sharp Corporation Award for the development and commercialisation of Dual-View. Diana is currently Principal Scientist at SLE. She is an author of numerous patents and has had her work published in approximately 25 peer-reviewed journals.



Diana Kean



Jonathan Mather

Jonathan Mather has a first-Class degree in Physics with Laser Science from the University of Southampton. In 2001 he joined Sharp Laboratories of Europe to work on 3D display technology. Soon after, he spent nine months at Sharp Cooperation in Japan transferring this technology, with his effort resulting in the world's first switchable 2D-3D mobile phone product. Over the next 4 years, he worked on the development of Sharp's Two-Way (Dual-view) display, pioneering the first prototype, improving light efficiency and reducing image mixing. Jon was the recipient of a Sharp Corporation Award for technology transfer in 2002 and again in 2005. Jon is author or co-author on approximately 25 patents. Jonathan is also studying part-time for a PhD from Exeter University under the supervision of Prof. Roy Sambles.

Heather Stevenson graduated from Loughborough University in 1999 with a first class honours degree in Physics. During her degree she was awarded the Siemens prize for best student. After a spell in Germany with Siemens and in Canada, Heather started work at Sharp in November 2000. She spent two years working on photoalignment methods for liquid crystals and then moved on to the research and development of Sharp's 2D-3D and Dual-view displays. Heather became Chartered Physicist in 2004 and is currently studying part-time for an MPhil at Oxford under Dr. Steve Elston.



Heather Stevenson



Grant Bourhill

Grant Bourhill: Grant graduated with a first in Chemistry from Strathclyde University in 1988. After completing a PhD in nonlinear optics for which he was awarded prize for best thesis, he spent three years at the Jet propulsion Laboratory working on structure-property relationships for organic optical materials. After a spell in Germany, he returned to the UK in 1996 to take up a position within the Defence Evaluation and Research Agency, where he spent five enjoyable years working on various optical sensor projects. In 2000, he joined Sharp laboratories of Europe and has contributed to the development and subsequent commercialisation of 3D, dual-view and switchable privacy LCDs. Grant is currently Chair of the UK Chapter of the SID.

Sharp were approached by a luxury car manufacturer who wanted to produce an entertainment screen for front-seat passengers which could not be viewed by the driver. The main challenge is that there is legislation forbidding any moving-image display that can be seen by the

driver while the vehicle is moving.

Grant Bourhill and his team invented a solution which was based on the Sharp 3D technology, but creating a dual-view display is considerably more difficult. Instead of a stereo pair, the display provides two separate images. One of these could be a map and the other an entertainment scene.

Because the images are separate, there are more stringent requirements for crosstalk to prevent ghosting occurring. In addition, the images must be separated by a wide angle to ensure that the driver cannot see the other screen and it must not be possible for rear-seat passengers to see a mixed view. During the course of the work, the team solved all these problems and they also filed no less than 25 patents to protect the technology.

Sharp announced mass manufacture of the technology on 14 July 2005 at a press conference for 170 journalists in Japan. There was considerable press and television coverage of the launch. It is particularly satisfying when the hottest topic in displays in Japan was invented in Oxford!. There is enormous interest in the product from a wide range of car manufacturers. It is believed that the technology will be used in two-player gaming, in mobile phones, in electronic point of sale applications and possible even in television. In the latter case, directional speakers or headphones will obviously be necessary.

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