New Vacuum Coater

Idvac, the specialist vacuum metallising developer and consultancy, is collaborating with Emerson & Renwick to manufacture and market a new generation of advanced narrow web vacuum coaters (*MiniMet 300*) to deposit innovative materials on flexible plastic films and flexible metallic foils for holographic and other niche applications.

Idvac, based in Manchester, UK, specialises in the development of advanced metallising processes for holographic, packaging and other niche markets. Over the past ten years Idvac has been successful in developing and introducing new vacuum processes and technologies to the security and packaging markets.

Precision engineering company Emerson & Renwick, based in Accrington, focusses on advanced web handling machinery for the coating, laminating and printing industries, including special application vacuum metallisers and web coating technologies for optical thin films and barrier applications.

The MiniMet 300 coater is a narrow width (300mm), skid mounted, free standing vacuum coater designed as a pilot or a small scale production platform to coat flexible films with aluminium, utilising a thermal evaporation source. The thermal evaporation source is trolley-mounted, comprising four off boats with four wire feeders. Each boat is provided with up to 18kVA power.

The machine can be retrofitted with advanced sources/processes to provide other coatings, including zinc sulphide, copper, titanium and chrome.

Alternatively, it can be retrofitted with either sputtering or electron beam sources. The machine incorporates a unique side-sliding door on the front of the chamber to offer easy access to the winding and evaporation mechanisms.

The evaporation area has a flexible design to facilitate the introduction of a sputtering source, electron beam gun or gas feeding system as required, utilising a trolley-mounted assembly for easy source exchange. The machine has the capability of changing the evaporation source to sputtering or electron beam evaporation with ease. The other new feature is the forward and reverse winding mechanism for multilayer coating.

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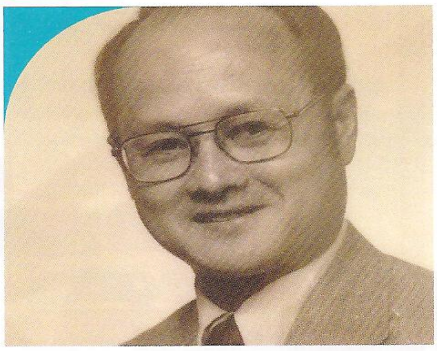
Tung Jeong (TJ): 1936-2015



With the 10th International Symposium on Display Holography under two months away, it is particularly sad to report the death of Dr Tung H Jeong, more commonly and affectionately known as TJ, for he organised the first ISDH in 1982, probably never realising that it would still be going strong 25 years later. He died peacefully in his sleep from prostate cancer.

TJ probably gave more people their first introduction to holography than any other single teacher, communicator or enthusiast, although his own route to holography was not straightforward. Born in China in 1931, he had a tempestuous childhood in which several of his siblings died of starvation and he was adopted by a family in a nearby village, escaping the Japanese invaders by moving around and living in caves. In 1948 he moved to live with an uncle in Texas, USA. He rapidly learned English, attended high school, then Yale on a full scholarship, graduating in physics and mathematics in 1957. He then went on to complete a PhD in nuclear physics at the University of Minnesota in 1963, his interest having been stimulated by the atomic bombs that ended the Japanese occupation of his village.

On completing his PhD, in 1963 he joined the faculty of Lake Forest College, a small liberal arts college north of Chicago. Understandably it was difficult for him to pursue his interest in nuclear physics there, so he spent his vacations as a junior researcher at Oak Ridge National Laboratory, where he was introduced to lasers – having avoided optics earlier in life because, reputedly, he found it boring! He then came across the writings of Emmett Leith and met him to discuss methods of teaching holography, as he was looking for a lab subject for hands-on teaching at Lake Forest.

From nuclear physicist to holographer

Holography provided this – and then some! He described being 'enchanted' by holography because it was 'so visual, tactile, easy enough to do' (quoted in Sean Johnston's *Holographic Visions*). He also visited the San Francisco School of Holography, where he was introduced to low-cost and easy-to-build sand tables, the eminently suitable base for making holograms in a Lake Forest setting. He undertook two tours across the USA, teaching four-day holography courses to 25 physics professors, thus stimulating the integration of holography into physics degree courses.

In the early 1970s he saw the art potential of holography so he started offering residential summer courses at Lake Forest, where he trained numerous people who then also became influential in teaching holography or making holograms. This in turn led him to hold the first ISDH in 1982; the summer courses were held every year, but he had the wisdom to make the Symposium a triennial meeting, which was held at Lake Forest until his retirement from a full-time post – by now, Director of the Photonics Center – in 1997.

In 1976 he was appointed as a Lecturer at the School of the Art Institute of Chicago, then in 1973 he set up Integraf Inc to supply hologram consumables, including the *Holokit*™, a complete set of equipment and supplies for schools and hobbyists to make holograms. His son Alec now runs Integraf.

TJ stayed involved with the ISDH and was Honorary Chairman for the 10th event, which takes place in St Petersburg, Russia, at the end of June. (There was a break in the sequence after the 1997 event before the 're-constituted' ISDH was held at the Centre for Modern Optics in St Asaph, UK, in 2006.) The early Symposia were important in bringing together artists, scientists and entrepreneurs in holography from all over the world. As Sean Johnston put it, 'Tung Jeong played (a) key role in redefining the community of holographers and enthusing the next generation through proselytizing.'

TJ was also co-director and writer of the film Introduction to Holography, for Encyclopedia Britannica in 1972, and he chaired the SPIE Practical Holography conference for several years. He received the IHMA's Lifetime Achievement Award, held the Robert Millikan Medal from the American Association of Physics Teachers and the Saxby Medal of the Royal Photographic Society. He was also a skilled violinist, swimmer and sailboarder. His enthusiasm, energy and communication skills will be sorely missed.

Much of the information in this article comes from the speech TJ gave at the Holo-pack•Holo-print conference in Shenzhen, China, in 2005, which is available to download from the Holography News® website.

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