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Editors

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Introduction

In August 2010 the Contamination, Optical Degradation, and Optical Stray Light communities gathered together in San Diego to participate in another extraordinary SPIE conference on Optical System Contamination: Effects, Measurements, and Control 2010.

During the first day and a half, many papers on a wide variety of subjects were presented, including: contamination effects; contamination control, monitoring, and verification; analytical modeling of space environments, and new technology advancements in anti-contamination and protective coatings. The individual sessions were chaired by leaders of state-of-the-art research in the Contamination community, and healthy discussions after each paper were conducted.

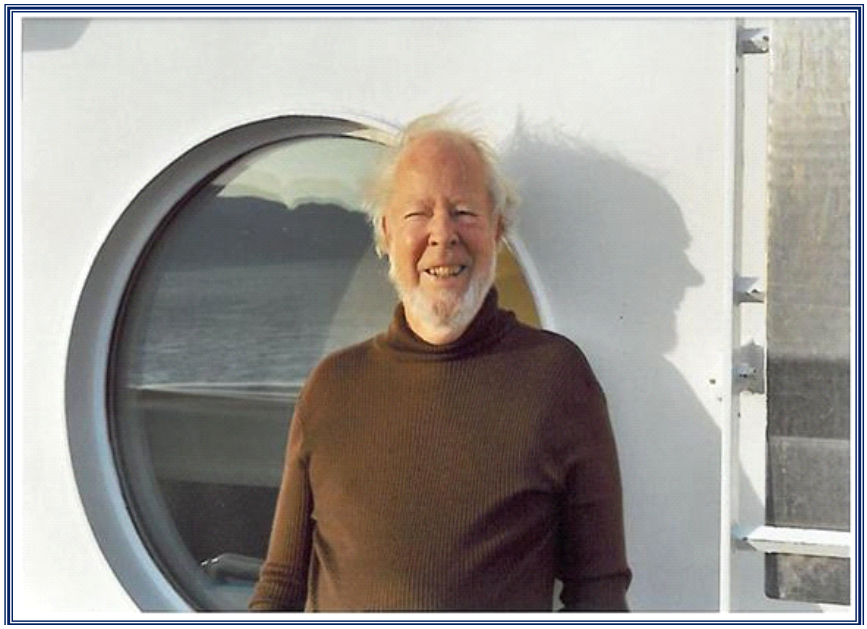
A centerpiece in the program was a touching commemorative session in honor of Mr. Don Wallace, who passed away this year. Don Wallace was a founder and leader in the development and application of quartz crystal microbalances and other contamination measurement devices, over many decades, in support of our nation's space program. The Wallace family was in attendance to receive engraved plaques and crystal statues in honor of their father and grandfather. Mr. Manny Uy gave a moving tribute summarizing the valuable accomplishments and services provided by Mr. Wallace throughout his lifetime.

On the final day of the program, a host of presenters and attendees participated in the Stray Light in Optical Systems sessions. Papers on stray light modeling as well as new methods to reduce stray light within optical systems were presented. Experts in the field were in attendance and excellent technical interchange among the audience ensued following the presentations.

The program chairs have an exciting plan for SPIE Optics + Photonics 2012, including interactive sessions and panels with world-renowned experts in the contamination, anti-contamination and thermal coatings, and optical degradation fields. Please plan on attending and participating!

Sharon A. Straka
Nancy Carosso

A Contamination Engineering Tribute to Don Wallace



This tribute is for Don Wallace, a pioneer in the field of contamination sensing, who died suddenly last July 20, 2009 in Victoria, British Columbia, Canada. Don devoted almost six decades of passionate research and work in the aeronautical engineering industry, analytical design, and contamination. He was a graduate of the University of Wyoming with a degree in Mechanical and Aeronautical Engineering, he went on to receive his Masters in Aeronautics from CALTECH.

Don Wallace's professional career began with applied research work on combustion and supersonic inlets with the USC Engineering Center (now the Jet Propulsion Laboratory). He played an essential part in the beginning of quartz crystal microbalance (QCM) research and development in the early 1960s under the name of Celesco, and later, Berkeley Industries. The first QCM produced was for a momentum flux experiment with plasma flow. Realizing the potential value of QCMs for detecting molecular flux in both ground-based vacuum systems and in space, Don began developing a full spectrum of QCMs and their associated data collection equipment.

He was involved with NASA's Space Shuttle, the 1971 Skylab program, and various Air Force and international satellites in the early 1970s, all using an early line of QCM Sensors. He played an integral part in the design, building, and inspection of Japan's NASDA Space Chamber in 1972 and the India ISA High Vacuum Chamber in 1982–83.

In 1985, Don and his wife Marie, purchased the growing line of QCM sensors and founded a new company, dedicated to the perfection of his sensors and the continued research into the expanding field of contamination analysis. He called this new company, appropriately, QCM Research. It is a testament to his character that one son, two daughters and a grandson eventually wound up working for his company.

Through this new company, he developed cryogenic and thermoelectric versions of his sensors to meet the expanding needs of the industry for both materials labs and space flight use. He continued to participate in many flight programs, and was very proud to have his instruments included on the first Mars Rover and prominently displayed in Time and National Geographic magazines, with his instruments on the covers.

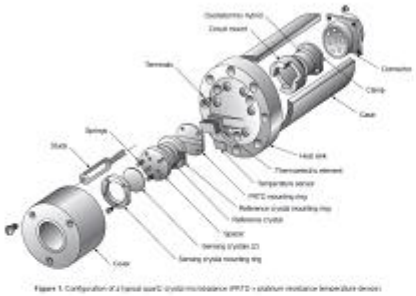


Figure 5. The Mark 16 CQCM used in MSX.

MINIATURE QCM FOR SPACECRAFT AND MISSILE APPLICATIONS

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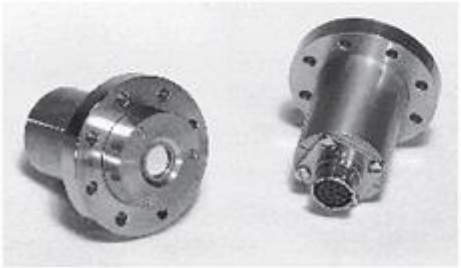

Figure 6. The Mark 10 TQCMs in MSX.

Figure 11. The Mark 21 miniature QCM.

With two patents, one book and over seventy technical papers to his name, along with his involvement in many professional committees and societies, his contribution to the industry, and to QCM technology in particular, can be seen throughout the world.

His love of his work, the friendships he made throughout his career, the joy he received from watching the many successes of his products and all the people he was able to help through them instilled in all of us who worked with him a sense of pride of accomplishment, and of ownership of our efforts. Don took every QCM failure personally, for he considered each QCM that made its way

out our door as a piece of art, as perfect as we could possibly make it. He made that work ethic an integral part of what his company was about, and we will continue to strive to meet his high standards.

Although Don retired several years ago, he continued to do the work he so loved—the research and development of new and improved designs to meet challenging, new industries.

As was his dream, Don worked until the very end. He would not have had it any other way. A brilliant scientist, pioneer, and respected leader, his legacy will live on in his family, in his company, and in his tremendous contribution to the industry.
I have known Don Wallace since 1985 and have worked with his quartz crystal microbalances on many programs such as MSX, VIP, SM3 and even ground monitoring of rocket plumes. He has never tired on developing new uses for the QCMs and was always willing to work with us no matter how challenging the requirements or schedule. He and his son, Scott, had pulled me out of many uncomfortable moments when cost and schedule became short. For that and for everything else that he has done for our community, thank you, Don Wallace!

Manny Uy
The Johns Hopkins University APL