SMST 2015 – Plenary Presentation

History of our Industry

Speakers: Keith Melton, Consultant and Tom Duerig, NDC

Keith Melton Bio
Keith Melton has a broad international experience in R&D and Innovation management. He worked on shape memory and super elastic materials at Brown Boveri in Switzerland and Raychem in California where he was Technical Director. He joined British Steel as Research Director, and became Director of Applications at the Anglo Dutch merged steel company Corus. Looking for diversification opportunities, he became Director of Renewable Energy Applications, and then left the steel industry to become Director of Technology at narec, the UK’s national renewable energy centre. His term as President of EUREC, the European Renewable Energy Research Centres Association recently ended. He now is semi-retired but still does some consultancy.

Tom Duerig Bio
Tom Duerig received his B.S. in physics from Lehigh University and his Ph.D in Materials Science from Carnegie-Mellon. He began working on shape memory alloys in 1980 at the Brown-Boveri research center in Baden, Switzerland. In 1983 he relocated to Silicon Valley, continuing his research of shape memory alloys with Raychem Corporation. In 1991, he founded Nitinol Devices and Components (NDC), with a focus on medical applications for Nitinol. After NDC was acquired by J&J in 1997, he served as a president of J&J for eleven years before leading a management buy-out of NDC in 2008. Tom is now the CTO of NDC, which is now an independent, privately owned company with over 400 people with facilities in two countries. Tom also co-founded SMST in 1992 and serves as an associate editor of the Journal of SMST.

Abstract
Two of the technical and commercial frontiersmen of shape memory and superelasticity reunite to give a somewhat personal overview of the history of our industry and its evolution. Brown-Boveri was at the technical forefront in the 1970’s but lacked the commercial focus needed to succeed. Raychem had the commercial focus, but its position on intellectual property made collaboration difficulty, presenting enormous barriers to success. "Industrial Aspects", the precursor to this conference, was organized to break down these barriers and the ensuing progress was unstoppable.

This presentation tracks the overall changes, coloured by several personal anecdotes. The presentation will finish by highlighting a number of problematic gaps in our understanding of these alloys, highlighting that this is still an immature field still in need of fundamental research.