

## Media communiqué

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*Honorable retirement after 35 years at Empa*

### **Walter Muster is awarded the Mirko Roš Gold Medal in recognition of his life's work**

***On 26<sup>th</sup> January Walter Muster's decades of scientific work at Empa were honored by the award of the Mirko Roš Medal. At a festive ceremony in the Empa Academy the research institution took leave of the erstwhile member of the Board of Directors and Head of the Advanced Materials and Surfaces Department on the occasion of his retirement.***

The Mirko Roš Award is named after the former Empa director under whose leadership from 1924 to 1949 the institution established its world-wide reputation. The award – a gold medal designed by the Swiss artist Hans Erni – was first presented in 2005 on the occasion of the Empa's 125 year Jubilee and is given in recognition of the lifetime contribution of outstanding personalities to materials science and engineering in the field of building technology. Following in the illustrious footsteps of Alfred Roesli, Aftab Mufti and the internationally known bridge builder Christian Menn, Walter Muster is now the fourth personality to receive the medal of honor.

### **From the Big Bang to space travel**

Empa Director General Prof. Louis Schlapbach opened ceremonies with a talk on the development of methods of orientation in space and time. As an example he took the development of navigation, which he described as both a science and an art, and explained how it has influenced our modern world. He covered the historical spectrum from the first marine navigation charts to today's GPS satellite system. In addition to man's insatiable thirst for knowledge, the development of precise measuring instruments was vital to this process. The accurate measurement of time was, in particular, a difficult challenge, and Schlapbach described the ship's clocks of those early days as high-tech products which were then state-of-the-art. Today modern navigational systems allow us to find our bearings safely and reliably in all three dimensions, whether on earth, in the atmosphere or in space. Nonetheless determining a destination, plotting a course to it and maintaining it all the way still requires many special abilities – in fact exactly those abilities which Walter Muster brought with him to Empa and has used so successfully for so many years.

### **Only intuition leads to breakthrough**

In the next presentation Jarmila Woodtli, Walter Muster's co-researcher and colleague of many years standing, addressed the theme of Knowledge and Ignorance, and so touched on deeply philosophical questions such as: does our level of ignorance increase in step with our expanding knowledge? The electron microscopy expert, who herself also recently retired, referred to the fact that French man of science and philosopher Blaise Pascal had attempted to find the answer to this question as long ago as the middle of the 17<sup>th</sup> century. Pascal likened the situation to a sphere representing all available knowledge floating in a sea of ignorance, the sphere continuously increasing in size as discoveries transform ignorance into new knowledge. This process of growth not only causes the volume of the sphere to increase continually but also its surface area, so that in fact the size of the frontier between knowledge and the unknown also increases. The transition area is particularly fascinating because it is here that new knowledge is accumulated on a daily basis through the efforts and discoveries of researchers, both theoretical and practical. Nowadays the speed with which humankind is accumulating knowledge depends on factors such as ethical guidelines and the political will to encourage and financially support research. In Jarmila Woodtli's opinion, however, the most important requirements for success in innovative research are personal qualities such as curiosity, creativity and in particular intuition. Intuition underscored by a logical understanding of the science is the factor which leads to the actual breakthrough to new knowledge.

### **Highest honors for essential contribution to research into construction steel damage**

The highlight of the festive ceremonies, the presentation to Walter Muster of the Mirko Roš Gold Medal, was next on the agenda. Cornelia Bodmer-Roš, a grand-daughter of Mirko Roš and representative of the selection committee, gave the laudatory address. Shortly after he joined the institution, Walter Muster was responsible for setting up and operating the first scanning electron microscope to be used at Empa, in order to be able to investigate materials at the highest possible resolution. Today the organization has on its inventory about a dozen electron microscopes of different types, with new developments enabling samples at molecular and atomic levels to be visualized. The groundwork for this state of affairs was done by Walter Muster, which, Cornelia Bodmer-Roš said, Empa gratefully acknowledged.

In particular in his position as Head of the Metal Technologies and Metallography Laboratory and later the Metals Department, Walter Muster made significant contributions to the field of civil engineering through his investigations into armoring and reinforcing steels. At that time the prestressing technique was used in the construction of many important bridges in Switzerland and, supported by Empa research, Swiss firms were able to claim a sizeable share of the world market in prestressed structures. In addition, Muster was responsible for the successful development of activities in the field of high performance ceramics at Empa, a research area which he had identified very early on as having great potential.

The conversion of the former Materials Testing Laboratory of the Swiss Armaments Group in Thun into what is now the research-oriented Empa Materials Technology Laboratory took place under Walter Muster's leadership. The fact that Muster was one of the leading generalists in the Swiss materials scene was not

only due to his twenty year long teaching activities at the ETH Zurich. He always applied his vast knowledge selflessly for the benefit of Empa, its scientific partners and Swiss industry. In consideration of his extraordinary contribution to Empa the Mirko Roš Committee therefore decided last December to acknowledge and honor Walter Muster lifetime's work with the Gold Medal.

As he accepted the award, a visibly moved Muster said that he was surprised to be so honored. It filled him with pride and pleasure to stand in the company of Alfred Roesli, Aftab Mufti und Christian Menn. The occasion was, in Walter Muster's own words, without doubt the high point of his long professional career and would help to overcome the wrench of leaving Empa.

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Representing the selection committee, Cornelia Bodmer-Roš, a grand-daughter of Mirko Roš, held the laudatio.



Cornelia Bodmer-Roš congratulates Walter Muster on his award.



Visibly moved, Walter Muster said as he accepted the award that the honor came as a great surprise.

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