Ladies and Gentlemen, Dear Participants,

In 2002, the Institute of Internal Combustion Engines and Thermodynamics organised an International Conference on Tunnel Safety and Ventilation. The aim of that conference was to provide a forum for information exchange among operators, users, technicians, scientists and companies involved in the design, construction and equipping of road and rail tunnels. The success of the 2002 conference led to the organization of biennial follow up meetings.

Each conference has been accompanied by an exhibition, and each year, like the conference itself, the exhibition has grown. The success of the exhibitions has forced us to leave the confines of our University campus and to move to the roomier facilities of the trade fair centre.

Our interests and focus have also changed and this is reflected in our topics. Our first conferences were strongly influenced by the tunnel incidents of the late 1990’s and related safety issues. Nowadays road tunnel operation, and the conflict between tunnel design and environmental concerns are of major interest.

Traffic is increasing, at both a national as well as an international level. Thus, while in densely populated areas there is much greater demand for sub-surface transportation, in rural areas there is an increasing need to upgrade the road infrastructure. The implementation of the EU Directive on the minimum safety requirements for tunnels in the trans-European road network (2004/54/EC) forced many of the tunnel operators to upgrade the existing tunnels.

Many of the existing tunnels (i.e. those 20 to 30 years old), are currently being refurbished and upgraded by the addition of a second tunnel tube. The construction of second tubes constitutes a big challenge in practice, as – in contrast to new tunnel construction – several prevailing structures and systems act as constraints and have to be taken into consideration in planning. There is also the additional need to ensure that traffic flow can be maintained throughout the construction period. Many of the underlying concepts in tunnel design and safety, equipment standards etc. have changed dramatically over the last decade. This often means that many of the existing tunnel structures prove to be more of a hindrance than a help in second tube construction.

The question of tunnel safety is a highly controversial field. It is often claimed that several new techniques are now on the market and that these can help improve safety due to quicker and more reliable detection, more efficient installations and/or additional equipment. However, such ‘improvements’ often result in significant increases in complexity, as well as in the cost of operation and maintenance of the new safety equipment. The time is now right for us to discuss what safety standards are required in our tunnels and at what price. We hope that the present conference will be of some value in such a discussion.

Risk assessment provides a valuable tool when attempting to deal with questions of safety. During the last couple of years many applications have been found for such tools. One aim of this conference is to highlight the pros and cons, as well as the limitations, of such applications.
This conference wouldn’t be the “Graz” conference without the related exhibition. Many companies have put a lot of effort into presenting their latest developments and technologies. Conference participants now have the chance to get into contact with leading companies in the electro-mechanical tunnel business, to establish new contacts, and also to strengthen existing ones.

Another exciting and distinguishing aspect of the “Graz” conference is its live fire test. This final highlight of the conference will be performed in the Himmelreich Tunnel close to the city of Graz. Many thanks to the road department of the federal government of Styria in general, and to Mr. Göbl specifically, for organising this test and for providing such practical insight into the final commissioning tests used for road tunnels.

We wish to extend a special thank you to our scientific committee for its valuable work in defining the objectives of this conference, and in selecting the presentations.

We also extend our professional thanks to the authors for their hard work in preparing abstracts, papers, and of course their presentations.

And finally, we wish to offer our sincere thanks to all the people in the background who have been working to ensure that this will be a smooth, enjoyable and effective conference for us all.

It is our pleasure to welcome you all on behalf of the conference scientific committee and to wish you all a successful meeting and a sound basis for fertile networking in the future.


Peter J. Sturm
Helmut Eichlseder

Graz, April 2012