From the Guest editors

Part one of this issue of the journal *Thermal Science* is devoted again to the topic of internal combustion engines. These topics deal with motor vehicle energy efficiency, engine performances and exhaust emissions, the application of alternative fuels and the improvements of engine processes. Actually, all these topics dictate the future of motor industry.

Over the past two decades, the motor industry has progressively risen to the challenge of reducing the impact of its products on air quality and has already started to address this additional challenge of reducing the climate change impacts of road transport. Many developments based on conventional fossil fuels and technologies are currently being pursued and will continue to contribute to these objectives.

The motor industry is also developing the use of alternative fuels and breakthrough vehicle technologies that have the potential to reduce further the climate change impact of the use of motor vehicles. The motor industry has a history of successfully responding to society's mobility needs. In addition to addressing consumer desires for convenient, safe, comfortable and efficient personal transport and cost-effective commercial vehicles, industry has also embraced the wider societal requirement of minimizing the environmental impact of road transport.

By 2010, the quality of tail pipe emissions for new vehicles will be such that any further regulated reduction will have a minimal environmental impact. By then, sufficient part of the existing vehicle fleet will have been replaced by newer, less polluting vehicles, to ensure a significant reduction of total emissions from present levels. Any future technological developments in this area will be driven by different factors; namely possible climate change by reducing emissions of known greenhouse gases, dependence on non-European oil reserves and the long term need for sustainable renewable energy sources.

In global, regional and national policy development, the major environmental challenge facing the automotive industry now and looking set to remain so in years to come is that of CO_2. This challenge is being partially addressed by efforts and commitments of the automotive industry to reduce fuel consumption. However, to achieve a step change in CO_2 levels, new technologies and fuels will be required.

Rapid technological developments are leading to a diversification in road transport fuel options. It is important that Industry, Government, and Society reach agreement on the ultimate fuels of the future and all parties work to achieve the timely introduction of this goal.

November 2010

Guest editors of this issue

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