

Preface

Mobility is an essential part of our lives. The ability to move freely is central to meeting our social and economic needs. For this reason, we have embraced the car over the past century, perhaps more than any other technology or consumer product. Today there are around 900 million vehicles on the world's roads with another 60,000,000 new vehicles produced each year worldwide. The scale of the automotive industry is significant and far-reaching. For example, it is estimated that around two-thirds of the world's oil output goes to transportation, whereas road vehicles alone consume around 40 % of the world's rubber and 25 % of the world's glass, with the consumption of raw materials and other resources growing further due to the rapid development of the automotive sector in China, India, Thailand, and Mexico. Transportation accounts for around 25 % of greenhouse emissions worldwide, whereas 90 % of transport-related emissions come from road vehicles, predominantly cars. Clearly, current levels of consumption and emission are unsustainable. This in turn suggests that mobility as we know it, based on the traditional vehicle technology and existing production and consumer practices, is unsustainable.

The challenge of developing new sustainable approaches to mobility confronts industries and our societies in general. The concept of sustainable mobility is multidimensional and the challenge of achieving it is quite complex. Based on current knowledge it is becoming painfully clear that there is no "silver bullet" or single technology available at present to address this challenge. To succeed we will most likely have to pursue a range of different technologies and approaches with short-term and long-term gains. This book aims to draw special attention to the research and practice focused on new technologies and approaches to meet renewable energies and urbanization.

The Ingolstadt ICSAT Conference widely addresses issues of mobility in general, redefines the future with respect to the vehicle, and its link to the city with respect to all challenges of urbanization. Within this, new fuel concepts play a major role despite all the activities in electro-mobility, the Ingolstadt conference focuses on all aspects of renewable energy sources.

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book on the multidisciplinary subject of sustainable mobility, as diverse in topics and approaches as this one, will be of interest to automotive technology researchers, policymakers, practitioners, and enthusiasts, whatever their background or persuasion.

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