

# Preface

2012 International Conference on Environmental and Materials Engineering (EME 2012) is to be held in Seoul, Korea, and December 9-10, 2012. The objective of EME 2012 is to provide a forum for researchers, educators, engineers, and government officials involved in the general areas of Environmental and Materials Engineering to disseminate their latest research results and exchange views on the future research directions of these fields.

Environmental engineering is the application of science and engineering principles to improve the natural environment (air, water, and/or land resources), to provide healthy water, air, and land for human habitation (house or home) and for other organisms, and to remediate polluted sites. It involves waste water management and air pollution control, recycling, waste disposal, radiation protection, industrial hygiene, environmental sustainability, and public health issues as well as knowledge of environmental engineering law. It also includes studies on the environmental impact of proposed construction projects.

Environmental engineers conduct hazardous-waste management studies to evaluate the significance of such hazards, advice on treatment and containment, and develop regulations to prevent mishaps. Environmental engineers also design municipal water supply and industrial wastewater treatment systems as well as address local and worldwide environmental issues such as the effects of acid rain, global warming, ozone depletion, water pollution and air pollution from automobile exhausts and industrial sources. At many universities, Environmental Engineering programs follow either the Department of Civil Engineering or The Department of Chemical Engineering at engineering faculties. Environmental "civil" engineers focus on hydrology, water resources management, bioremediation, and water treatment plant design. Environmental "chemical" engineers, on the other hand, focus on environmental chemistry, advanced air and water treatment technologies and separation processes.

Materials science is an interdisciplinary field applying the properties of matter to various areas of science and engineering. This scientific field investigates the relationship between the structure of materials at atomic or molecular scales and their macroscopic properties. It incorporates elements of applied physics and chemistry. With significant media attention focused on nanoscience and nanotechnology in recent years, materials science has been propelled to the forefront at many universities. It is also an important part of forensic engineering and failure analysis. Materials science also deals with fundamental properties and characteristics of materials.

EME conference provides a forum for engineers and scientists in academia, industry, and government to address profound issues including technical challenges, safety, social, legal, political, and economic issues, and to present and discuss their ideas, results, work in progress and experience on all aspects of Environmental and Materials Engineering.

We take the opportunities to thanks again to the authors who have contributed tremendously to the success of EME2012. Without their contribution, the conference could not be so successful.

Yun Wu and Yijin Wu

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