

# COMDEM<sup>TM</sup> 2010

## Advances in Maintenance and Condition Diagnosis Technologies towards Sustainable Society

Proceedings of the 23rd International Congress on  
Condition Monitoring and Diagnostic Engineering Management  
June 28–July 2, 2010, Nara, Japan

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Organized by  
The Society of Plant Engineers Japan



# Preface

The 23rd International Congress on Condition Monitoring and Diagnostic Engineering Management (COMADEM 2010) continues a long tradition of scientific and technical meetings under the aegis of COMADEM International. COMADEM 2010 is hosted by the Society of Plant Engineers Japan, and takes place from June 28th to July 2nd at the Nara Prefectural New Public Hall in Nara Prefecture.

As environmental concerns about the depletion of the earth's resources are gaining increased attention, the present system in which industrial products are produced, consumed, and disposed is significantly viewed as increasing environmental burdens. To build a sustainable society by making effective use of limited resources, it is necessary to shift from an economic system consisting of mass production, mass consumption, and mass disposal to a recycling-based economic system in which resources will be continually recycled. The primary goal of this congress is to emphasize the importance of realigning the industrial world's priorities for sustainable environmental harmony.

In particular, I call your attention to the work of The International Panel on Climate Change (IPCC), which is the intergovernmental panel that reviews scientific information relevant to understanding global warming. IPCC provides the world clear scientific, technical, and socio-economic insight into the state of climate change and its potential environmental and socio-economic consequences, and the panel has put forth a significant conclusion: most of the observed increase in average global temperatures since the mid-20th century is very likely attributable to the observed increase in anthropogenic greenhouse gas concentrations. Further, IPCC has concluded that continuing greenhouse gas emissions at or above current rates would cause further warming and induce 21st century changes in the global climate system that very likely would exceed those observed during the 20th century. From the perspective of issues related to COMADEM, therefore, the 23rd Congress emphasizes advances in maintenance and condition diagnosis technologies towards sustainable society as the main theme.

This compilation of the congress proceedings includes 3 keynote papers, 93 contributed papers, and 34 papers selected for six workshop programs. Regular papers published in the proceedings have been peer reviewed while short papers have not been peer reviewed, both of which are indicated in the table of contents. I trust that your participation in the congress will be beneficial and productive and will pave the way for future international collaborations and networking.

I express my sincere appreciation to members of the International Advisory Committee for reviewing the regular papers, to the entire Organizing Committee for arranging the congress, and to members of the Technical Program Committee and the Honorary Committee for their invaluable efforts. I particularly wish to thank the authors who have contributed such quality papers to the proceedings. Their willingness to share their insights will benefit the condition monitoring and diagnostic engineering community as a whole.

Susumu Okumura  
Chairman of the COMADEM 2010 Organizing Committee  
Nara, Japan, June 2010  
Professor, University of Shiga Prefecture

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#### Organisers:

Prof. Dr.-Ing. habil. Josef Börsök (University of Kassel, Germany)

Dr. Michael H. Schwarz (University of Kassel, Germany)

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