

Advanced Train Control Systems

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Advanced Train Control Systems

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Preface

Since 1992 I have participated in all of the Comrail conferences. I think that Comrail is one of the most successful conferences in the areas of railways and other transit systems. The proceedings of the conferences reflect the new achievements and applications of computer based technologies in railways. The Conference series establishes a good platform for professional experts from all over the world to exchange their views and achievements.

Professor Carlos Brebbia, one of the conference chairmen for Comrail 2010, suggested that I review the papers on advanced train control systems published in the most recent previous proceedings and select the best papers for the publication of this special volume on Advanced Train Control Systems (ATCS). The idea was to collect the best papers in one of the areas of the conference for publication as a separate volume to help the international reader. I was happy with that suggestion and in particular with being responsible for editing this special volume for Advanced Train Control Systems for signaling engineers, designers, manufactures and operators amongst them. As editor, I hope that I have made the right choice and that readers find this special volume informative and helpful.

Advanced Train Control Systems are playing an important role in improving the efficiency and safety of train operation, acting as their “brains and nerves”. ATCS needs highly reliable and safe systems using complex computer tools. Normally, these systems consist of four parts: the central control system; the station control systems and wayside systems; the on-board control systems and the communication network including mobile communication. From the point of view of the whole life cycle, an Advanced Train Control System includes design and development, re-design for a special line application, simulation verification and test, plus safety assessment of the system and subsystems. These concepts are known to those who are familiar with typical advanced train control systems such as ETCS, CTCS for main line railways and CBTC for transit systems.

When selecting and editing the papers for this special volume, it was my intention to offer the reader a wide picture of the ATCS field based on past

papers presented at the Comprail conferences. I hope that this purpose has been achieved.

Finally, I should thank all the authors of all sixteen papers for their contribution to this special volume. Without their support, this special volume could not have been published.

The Editor