



EDITOR
E. Pilo

Power Supply, Energy Management and Catenary Problems

Contents

Part A. Energy Management in the Train Operation

Reducing power peaks and energy consumption in rail transit systems
by simultaneous train running time control

T. Albrecht 3

Power management control in DC-electrified railways for the
regenerative braking systems of electric trains

Y. Okada, T. Koseki & K. Hisatom 13

Impact of train model variables on simulated energy usage and
journey time

P. Lukaszewicz 25

A study of the power capacity of regenerative inverters in a DC electric
railway system

C. H. Bae, M. S. Han, Y. K. Kim, S. Y. Kwon & H. J. Park 35

Train operation minimizing energy consumption in DC electric
railway with on-board energy storage device

K. Matsuda, H. Ko & M. Miyatake 45

Computer-aided design of ATO speed commands according to
energy consumption criteria

M. Dominguez, A Fernandez, A.P. Cucala & L.P. Cayuela 55

Charge/discharge control of a train with on-board energy storage devices
for energy minimization and consideration of catenary free operation

M. Miyatake, K. Matsuda & H. Haga 65

Evaluation of energy saving strategies in heavily used rail networks by
implementing an integrated real-time rescheduling system

M. Luethi 75

Part B. Power Supply System Analysis, Design and Planning

Online temperature monitoring of overhead contact line at the new German high-speed rail line Cologne-Rhine/Main N. Theune, T. Bosselmann, J. Kaise, M. Willsch, H. Hertsch & R. Puschmann	87
Electric traction energy metering on German Railways and the impact of European standardisation on the energy billing process in Germany K. Weiland	95
Development of feeder messenger catenary with the auxiliary wire K. Nishi, Y. Sato & T. Shimada.....	101
Catenary and autotransformer coupled optimization for 2x25kV systems planning E. Pilo, L. Rouco & A. Fernandez	113
Investigation into the computational techniques of power system modelling for a DC railway A. Finlayson, C. J. Goodman & R. D. White	123
Optimal design of power supply systems using genetic algorithms J.R. Jimenez Octavio & E. Pilo	135
Application of linear analysis in railway power system stability studies S. Danielsen, T. Toftevang & O.B. Fosso.....	145
Fast estimation of aggregated results of many load flow solutions in electric traction systems L. Abrahamsson & L. Söder	157
DC protection calculations – an innovative approach R. Leach, D. Tregay & M. Berova	171
Author index.....	187