

## TABLE OF CONTENTS

<b>Development of Maglev Transportation in Japan: Present State and Future Prospects</b> Eisuke Masada	1 J
<b>Status Quo of Development of Super-conducting Maglev System in Japan</b> Syohiko Miyata, Kazuhisa Matsuda, and Mamoru Minemoto	7 J (1)
<b>The Development of the Superconducting Maglev System</b> Kan-ichiro Kaminishi, Akio Seki, and Hitoshi Tsuruga	10 J (2)
<b>Outline of HSST-100 System and Test Line in Nagoya</b> Masaaki Fujino	16 J
<b>High-Speed Magnetic Levitation Train Transrapid, Planning of the Development Program until 1995 and Prospects of Utilization in the Federal Republic of Germany</b> Ulrich Wiescholek, Willi J. Mayer, and Dieter Rogg	22 D
<b>Analysis of Prospective Transrapid Applications</b> H.G. Raschbichler, L. Miller and M. Wackers	29 D
<b>Results on the Operation of the Transrapid Test Facility in Emsland, North Germany</b> Fritz Polifka and Hans-Peter Friedrich.	35 D
<b>Maglev Programs in Korea</b> In-Kun Kim, Mun-Whan Yoo, Chanil Park, Hyun Kap Chung, and Kook-Hun Kim	41 Korea *
<b>A General Survey of Chinese Maglev Train</b> J.S. Lian, J.W. Zhou, K.L. Zhang, and H. Jiang	46 China *
<b>Present Status of Research for Maglev in Italy</b> G. Martinelli and A. Morini	51 Italien
<b>Status of Development and Future Prospects of DaeWoo Maglev System in Korea</b> In-Dae Chung, Dal-Ho Im, and Chan-II Park	54 Korea *
<b>New Structure Electro-Magnetic Guideway for Maglev</b> Shunsuke Fujiwara, Kazuo Sawada, Hirotaka Natsuhara, Nobuhito Uchiyama, Yukio Saitou, Yoshitaka Kobayashi, Shigeya Oohama	60 J
<b>Electrodynamic Forces of the Cross-Connected Figure-Eight Null-Flux Coil Suspension System</b> J.L. He, D.M. Rote, and H.T. Coffey	64 USA
<b>Self Nulling Hybrid Maglev Suspension System</b> Richard Herbermann	71 USA
<b>Flux Canceling Maglev</b> Richard Thornton	75 USA

D	<b>Maglev Transportation with Controlled Permanent Magnets and Linear Synchronous Motors</b> H. Weh, A Steingröver, and H. Hupe	82
Russl. Ukraine	<b>Maglev Transit Technology in Russia</b> Floyd A. Wyczalek	88 94
US	<b>The Organic Guideway Concept</b> Timothy Barrows	
US	<b>Magneplane Vehicle Dynamics Simulation</b> W. Aitkenhead	101
US	<b>Technology and Costing Considerations for Full Maglev System Development as Derived from Bechtel's SCD Exercise</b> J.C. Perkowski	106
US	<b>System Concept Definition of the Grumman Superconducting Electromagnetic Suspension (EMS) Maglev Design</b> M. Proise, L. Deutsch, R.J. Gran, R. Herbermann, S. Kalsi, and P. Shaw	111
US	<b>Maglev Cost and Performance Parametrics</b> L. Deutsch	119
US	<b>Analysis of Maglev Corridors</b> G.R. White	125
US	<b>Market and Energy Demand Analysis of a U.S. National Maglev System</b> A. Vyas, and D. Rote	131
US	<b>Reducing Magnetic Fields from Maglev Guideways to Reasonable Levels</b> J.P. Blanchard	138
US	<b>Loss and Guideway Interaction Force Measurements on a Superconducting Magnet for Maglev Applications</b> C.R. Dauwalter	142
US	<b>Magnetic Fields from a Maglev Linear Synchronous Motor</b> D. Galler, and W.J. Greenberg	147
US	<b>Magnet Design Optimization for Grumman Maglev Concept</b> S. Kalsi, R. Herbermann, C. Falkowski, M. Hennessy, A. Bourdillon	153
J	<b>Superconducting Magnet and Refrigeration System for Maglev Vehicle</b> H. Nakashima, M. Terai, M. Shibata, M. Yamaji, Y. Jizo	160
US	<b>Comparison of Magnetic Lift and Drag Forces for Two EDS Maglev Topologies</b> J.R. Hale, D.B. Montgomery, R.D. Pillsbury, Jr., R.J. Thome, J. Feng, and A. Radovinsky	165
US	<b>Transrapid TR-07 Maglev-Spectrum Magnetic Field Effects On Daily Pineal Indoleamine Metabolic Rhythms in Rodents</b> Kenneth R. Groh	171

<b>Innovative Spine Girder Guideway Design for Superconducting EMS Maglev System</b> J.B. Allen, M. G. Ghali	177	US
<b>Parametric Design and Cost Analysis for an EMS Maglev Guideway</b> B.M. Bohlke, and D.B. Burg	183	US
<b>Guideway and Infrastructure in JR Maglev</b> K. Okada, A. Takano, and M. Yamazaki	189	J
<b>Reduction of Guideway Residual Vibration through Strategic Vehicle Pad Spacing Arrangements</b> R.S. Phelan	195	US
<b>Alignment and Surveying of Magnetic Levitation Train Guideways</b> H.J. Marx, and R. Stoeckl	201	D
<b>Aerodynamic Drag of Maglev Vehicles</b> F.A. Balow, K.R. Sivier	206	US
<b>Maglev Secondary Suspension Using Electroactive Fluids</b> D.K. Bhadra, C.R. Harder, and G. Mansfield	212	US
<b>Maglev Vehicle Dynamic Interaction with Aerial Guideways</b> L.E. Daniels, and D.R. Ahlbeck	218	US
<b>Modeling and Control of Maglev Vehicles with Aerodynamic and Guideway Disturbances</b> K. Flueckiger, S. Mark, and D. McCallum	227	US
<b>Rail Irregularity and Module Response in HSST-100 System</b> M. Iwaya	233	J
<b>Five Degree of Freedom Analysis of the Grumman Superconducting Electromagnetic Maglev Vehicle Control and Guideway Interaction</b> R.J. Gran, and M. Proise	238	US
<b>Vehicles for Superconducting Maglev System on the Yamanasi Test Line (Except Linear Synchronous Motors)</b> K. Takao, and N. Shirakuni	248	J*
<b>Overview of Maglev Vehicle Structural Design Philosophy, Material Selection and Manufacturing Approach</b> P. Shaw	253	US
<b>Aerodynamic Analysis of Grumman Maglev Vehicle</b> M.J. Siclari, G. Carpenter, and R. Ende	259	US
<b>Dynamics, Stability, and Control of Maglev Systems</b> Y. Cai, S.S. Chen, S. Zhu, D.M. Rote, and H.T. Coffey	265	US
<b>Linear Synchronous Motor Design</b> Richard D. Thornton	271	US

D X	<b>Improvements of the Attractive Force Levitation Concept</b> H. Weh, H. May, H. Hupe, and A. Steingröver	277
* US	<b>Technical Assessment of Maglev System Concepts</b> James H. Lever	283
us?	<b>Maglev Performance Simulation</b> G. Anagnostopoulos, J.E. Anderson, and F.L. Raposa	290
us	<b>Noise from High Speed Maglev Trains</b> Carl E. Hanson	298
us	<b>Magnetic Analysis of U.S. Maglev Designs</b> Howard T. Coffey, Jianliang He, and Zian Wang	304
italy	<b>Control Strategies of a LSM Drive for EDS-Maglev Systems</b> F. Albicini, M. Andriollo, G. Martinelli, and A. Morini	310
us	<b>Longstator Linear Synchronous Motor (LLSM) Modeling for Simulation and Control System Design</b> J.A. Britton, and R.L. Klein	316
us	<b>Maglev Position Sensing and Control</b> T.M. Clark	322
us	<b>Methanol Reforming PEM Fuel Cells as an Onboard Power Source for Maglev Vehicles</b> B.T. Concannon	327
* US	<b>Onboard Power Source Alternatives for Maglev Vehicles</b> B.T. Concannon	330
Italy	<b>Comparative Analysis of EDS and EMS Maglev Systems</b> A. DiGerlando, I. Vistoli, and M. Galasso	336
Italy	<b>Design Problems of Linear on Board Generators in EMS Maglev Transportation Systems</b> A. DiGerlando, and I. Vistoli	342
us	<b>On-Vehicle Power Generation at all Speeds for Electromagnetic Maglev Concept</b> S. Kalsi	348
D Y	<b>Present State of Development of Synchronous Long-Stator Propulsion System for TRANSRAPID Maglev Trains</b> U. Henning	352
J	<b>Power Supply System for Superconducting Magnetic Levitation System</b> H. Ikeda, H. Ohtsuki, J. Kitano, Y. Osada, N. Katoh, N. Morishima, and H. Aizawa	358
J	<b>Current Control for Thrust Force Controlling Inverter of HSST</b> I. Miyashita and Y. Ohmori	364

<b>A Novel Maglev System Driven by Air-Cored Linear Induction Motors</b> E. Levi, Z. Zabar, L. Birenbaum, and S.Y. Yoo	370	US
<b>Power Electronics for Linear Synchronous Motor Propulsion Systems</b> D.J. Perreault, and R.D. Thornton	374	US
<b>Analytical Evaluation of the Influence of the Armature Coils Distribution on the Thrust of Linear Synchronous Motor for Maglev</b> M. Trapanese	380	Italy
<b>Status of the Safety Certification Process of the Transrapid System</b> J. Blomerius	386	D
<b>Vertical Dynamics of a Superconducting Suspension System</b> D. Casadei, U. Reggiani, G. Serra, and A. Tani	392	Italy
<b>Maglev Command, Control, and Communication Systems Design Requirements Analysis and Safety-Critical Architecture</b> J.W. Lewis and R.Y. Yee	398	US
<b>Aerodynamic Braking Systems for Maglev Vehicles</b> J. Guglielmo, T.J. Zych, and K.R. Sivier	405	US
<b>Signaling System of Maglevtype HSST</b> F. Hashimoto	411	J
<b>Siemens Operations Control System for Maglev Trains</b> H. Eilers, V. Freitag, and R. Knigge	417	D
<b>Influence of JR Maglev on Environment</b> N. Kokubun, A. Honda, and M. Yasunami	420	J
<b>Train Control Systems for Super-conductive Magnetic Levitation System</b> K. Kubota, T. Tanaka, Y. Osada, S. Sasaki, and Y. Yokota	424	J
<b>Maglev Demonstration Project Site Location Study</b> L.C. Lennon	430	US
<b>The Environmental Impact of Maglev, a Comparative Study</b> M.C. McClintock	434	US*
<b>Safety Evaluation Test for Electromagnetic Levitation Transport System H-100</b> T. Mizuma, Y. Satoh, and E. Masada	441	J
<b>A Dynamic Computer Simulation of a High Speed Maglev Vehicle</b> Cam de Pierre	446	US
<b>Maglev Automated Preventive Maintenance System</b> J.S. Ng, A.L. Harris and M.E. Amoon	452	US
<b>Using Existing Infrastructure to Make Maglev Work in the United States</b> C.M. Gillam, and E.E. Gilcrease	457	US
<b>Author Index</b>	463	