

## TABLE OF CONTENTS

### SESSION 1

#### COMBUSTORS AND AIR HEATERS

<b>Design Considerations for Commercial MHD Coal Combustors</b>	
R. Braswell, R. Hession, H. Iwata, G. Roy TRW Applied Technology Division.....	1.1.1
<b>Numerical Analysis and Cold Model Experimental Investigations of Coal-Fired MHD Combustors</b>	
Y. Cheng, F. Lu, Y. Xu, Y. Fang Thermoenergy Engineering Research Institute, Nanjing Institute of Technology.....	1.2.1
<b>Experimental and Theoretical Investigations of Coal Injectors for MHD Combustors</b>	
Q. Wei, A. Chen, Y. Fang Thermoenergy Engineering Research Institute Nanjing Institute of Technology.....	1.3.1
<b>High Pressure Ceramic Heat Exchanger for MHD Applications</b>	
B. Ramakrishna Rao, A.B. Datta, P. Pari, K. Thiagarajan Bharat Heavy Electricals Limited.....	1.4.1
<b>Performance of High Temperature Valve in Indian MHD Pilot Plant Operations</b>	
C.R. Ramanathan Bharat Heavy Electricals Limited.....	1.5.1
<b>Indian MHD Pilot Plant Airpreheater Optimisation Experiments Using Orthogonal Array Techniques</b>	
V.R. Malghan, D. Krishnamurthy, S. Babu, N.N. Pandey Bharat Heavy Electricals Limited.....	1.6.1

### SESSION 2

#### GENERATORS

<b>Operating Characteristics of a Slagging Diagonally-Loaded Magnetohydrodynamic Power Generator</b>	
C.C.P. Pian, S.W. Petty, A.W. McClaine Avco Research Laboratory, Inc.....	2.1.1
<b>*Comparison of Oil and Coal-Fired MHD Generator Performance at CDIF</b>	
C.C.P. Pian, S.W. Petty, A.W. McClaine, J.D. Pakko Avco Research Laboratory, Inc.	
L.C. Farrar Montec Associates, Inc.....	2.2.1

.....  
\*Paper unavailable at time of publication

**Analysis of MHD Fluctuations in the IEE Mark II Experiments of 1986**  
B.C. Winkleman, Y.C.L. Wu, J.T. Lineberry  
The University of Tennessee Space Institute  
C. Yang, Z. Ju  
The Institute of Electrical Engineering, Academia Sinica.....2.3.1

**MHD Generator Tests at the IEE Mark II Facility**  
J.T. Lineberry, Y.C.L. Wu, B.C. Winkleman  
The University of Tennessee Space Institute  
C. Yang, Z. Ju  
The Institute of Electrical Engineering, Academia Sinica.....2.4.1

**Radial Outflow Disk Generator Experiments**  
S.W. Simpson, S.M. Marty, H.K. Messerle  
School of Electrical Engineering, University of Sydney.....2.5.1

**Recent Results of Closed Cycle Disk MHD Studies at Tokyo Institute of Technology**  
S. Shioda, S. Kabashima, H. Yamasaki, K. Yoshikawa, N. Harada  
Tokyo Institute of Technology.....2.6.1

### SESSION 3 ELECTRODES/INSULATORS

**Current Conduction Through Insulating Wall: Effect of Seeding**  
A. Chandra  
Centre for Energy Studies, Indian Institute of Technology.....3.1.1

**Electrical Behaviour of Coal Slag**  
D.S. Patil, N. Venkatramani, V.K. Rohatgi  
Plasma Physics Division, Bhabha Atomic Research Centre.....3.2.1

**The Study of the Possibility of Application of Thin Alumina Coatings to Improve the Insulation Characteristics of MHD Channel**  
E.P. Pahomov, E.E. Podkljetnov, A.I. Romanov, L.G. Smirnova,  
A.S. Tikhotsky, V.I. Zalkind  
Institute for High Temperatures, U.S.S.R. Academy of Sciences  
P.O. Kettunen, T.A. Mantyla, A.K. Telama, P.M.J. Vuoristo  
Tampere University of Technology  
D.J. Dudko, V.S. Jakovlev, A.A. Mirochnichenko  
Uk.S.S.R. Academy of Sciences.....3.3.1

**\*Thermal Expansion and Boundary Stresses in Composite Electrodes**  
P.V. Ananthapadmanabhan, N. Venkatramani, V.K. Rohatgi,  
A.C. Momin, K.S. Venkateswarlu  
Plasma Physics Division, Bhabha Atomic Research Centre.....3.4.1

**Surface Studies of Metallic Electrodes Under MHD Generator Operating Conditions**  
S.C. Sharma, R.P. Dahiya  
Centre of Energy Studies, Indian Institute of Technology.....3.5.1

.....  
**\*Paper unavailable at time of publication**

SESSION 4  
SPECIAL TOPICS

<b>*Design and Operational Considerations for MHD Generator Electrical Faults</b>	
L.C. Farrar Montec Associates	
R.J. Rosa Montana State University.....	4.1.1
<b>Application of an MHD Generator to Electromagnetic Sounding</b>	
H.F. Morrison, R. Zolinger University of California at Berkeley	
C. Maxwell, S.T. Demetriades STD Research Corporation	
W.D. Jackson HMJ Corporation.....	4.2.1
<b>Numerical Simulation of In-Situ MHD Generator for Fusion Application</b>	
Y. Inui, M. Ishikawa, J. Umoto Kyoto University.....	4.3.1
<b>Optimal Design of a Linear Nonequilibrium MHD Channel for Different Loading Connections</b>	
P.L. Ribani, C.A. Borghi, F. Negrini Istituto di Elettrotecnica, Universita' di Bologna.....	4.4.1

SESSION 5:  
STATUS REPORTS/NATIONAL PROGRAMS

<b>Coal-Fired MHD Topping Cycle Test Progress at the Component Development and Integration Facility</b>	
W.E. Lowry Mountain States Energy, Inc.....	5.1.1
<b>CFFF Status Report: Western Coal and Proof-of-Concept Testing</b>	
R.C. Attig, J.N. Chapman, N.R. Johanson, J.W. Muehlhauser, Y.C.L. Wu The University of Tennessee Space Institute.....	5.2.1
<b>Indian MHD Programme - A Status Review</b>	
S. Sridharan, S.A. Arunachalam, V.R. Malghan, K. Thiagarajan Bharat Heavy Electricals Limited.....	5.3.1
<b>Status Report of 1A Test Train Hardware Performance and Development</b>	
R.J. Glovan, F. Stark Mountain States Energy, Inc.....	5.4.1

.....  
\*Paper unavailable at time of publication

<b>Isolation and Instrumentation Concerns in the High Common Mode Potential MHD Environment---CDIF Experiences---</b>	
K. Hase, F. Stark Mountain States Energy, Inc.....	5.5.1

**SESSION 6**  
**LIQUID METAL MHD**

<b>*Development of a 15 MW<sub>e</sub> Liquid Metal MHD Power Plant in Israel</b>	
H. Branover, A. El-Boher, L. Blumenau, U. Deckel, Y. Levy, E. Spero, S. Sukoriansky Center for MHD Studies, Ben-Gurion University of the Negev....	6.1.1
<b>The Application of Liquid-Metal MHD to Renewable Energy Sources</b>	
G.F. Berry Argonne National Laboratory	
E.S. Pierson Purdue University Calumet	
M. Petrick Argonne National Laboratory	
S. Sukoriansky Ben-Gurion University of the Negev.....	6.2.1
<b>A New Type of AC Generator for Liquid Metal MHD Power Generation</b>	
C. Bi, Y. Fang Thermoenergy Engineering Research Institute Nanjing Institute of Technology.....	6.3.1

<b>MHD Turbulence with Inverse Energy Cascades and Enhanced Heat Transfer</b>	
H. Branover, S. Sukoriansky Center for MHD Studies, Ben-Gurion University of the Negev....	6.4.1

<b>Characteristics of the LMMHD Compressor and Potential Synergism with Closed Cycle Plasma MHD</b>	
L. Blumenau, E. Spero Center for MHD Studies, Ben-Gurion University of the Negev....	6.5.1

**SESSION 7**  
**PLASMA DYNAMICS/DIAGNOSTICS**

<b>New Measurements of Secondary Flow in an MHD Channel</b>	
C.H. Kruger, R.C. Goforth High Temperature Gasdynamics Laboratory Stanford University.....	7.1.1

.....  
\*Paper unavailable at time of publication

<b>*Measurements of Arc Size in the CDIF</b>	
R.J. Rosa Montana State University	7.2.1
L.C. Farrar Montec Associates.....	
<b>Three-Dimensional Analysis of Faraday Type MHD Generator for Presumed Next Pilot Plant</b>	
M. Ishikawa, J. Umoto Kyoto University.....	7.3.1
<b>A High-Intensity Point Perturbation in a Two-Temperature MHD Plasma</b>	
B.C. Lin, J.F. Louis Massachusetts Institute of Technology.....	7.4.1
<b>Laser Velocimetry Measurements at the UTSI MHD Coal-Fired Flow Facility</b>	
W.S. Shepard, W.W. Wilson, D.V. Srikantaiah, R.D. Benton, R.L. Cook Mississippi State University.....	7.5.1
<b>Electron Concentration Measurements of Seeded Plasmas Using Spectroscopic Methods</b>	
A. Chandra, B. Vasantha, N.K. Mandal, S. Varma, R. Panwar Centre for Energy Studies, Indian Institute of Technology.....	7.6.1
 <b>SESSION 8</b>	
<b>DOWNSTREAM COMPONENTS</b>	
<b>Particle Evolution in MHD Systems</b>	
C.S. Wang Argonne National Laboratory	
J.S. Lindner Mississippi State University.....	8.1.1
<b>Monitoring Particulates from the DOE Coal-Fired Flow Facility During 1986</b>	
J.K. Holt, J.L. Casey, J.R. Douglas The University of Tennessee Space Institute.....	8.2.1
<b>The Properties of MHD Fouling Deposits and Their Implications</b>	
L.S.H. Chow, C.S. Wang, S.D. Lang, F.G. Teats, W.M. Swift Argonne National Laboratory.....	8.3.1
<b>Design and Development of a Heat Recovery Unit for Indian MHD Retrofit Programme</b>	
S. Sridharan, S.K. Somasundaram, K.V.S. Sundaram Bharat Heavy Electricals Limited.....	8.4.1

.....  
**\*Paper unavailable at time of publication**

<b>Analysis of Diffuser/Radiant-Boiler Interface Design: High-Velocity Particle Impact at the Back Wall of the Radiant Boiler</b>	
J.R. Hull, G.F. Berry Argonne National Laboratory.....	8.4.1
<b>Author's Index.....</b>	A.1.1