- Overview p. ix
- Session I Theory, Mechanism, and Simultion
- Tribological Design: A Real World Approach K. C. Ludema p. 3

• Mechanisms of Abrasive Wear in Lubricated Contacts J. A. Williams and A. M. Hyncica p. 13

• Tribology of Hydraulic Systems: Hydrodynamic Effects of Surface Roughness K. Tonder p. 31

- Lubrication Characteristics on Sliding Surfaces in a Piston Pump and Motor During Running-In Tests K. Tanaka and K. Kyogoku and T. Nakahara p. 41
- Elastic-Plastic Finite Element Stress Analysis of Two-Dimensional Rolling Contact Y. Jiang and J. Chang and B. Xu p. 59
- Development of a New Application-Related Test Procedure for Mechanical Testing of Hydraulic Fluids D. G. Feldmann and M. Kessler p. 75
- Modeling Abrasive Wear of Homogeneous and Heterogeneous Materials K. Elalem and D.
- Y. Li and M. J. Anderson and S. Chiovelli p. 90

• Hydraulic Gear Pump Failure Analysis and Tribology Simulation L. D. Wedeven and R. Bourdoulous p. 105

- Corrosive Wear in Hydraulic Systems: An Overview H. Liang and G. E. Totten p. 119
- Session II Failure Analysis
- Root Cause Analysis to Identify Hydraulic Failure Modes J. Reichel and M. Wahl p. 137
- Failure Analysis of the Hydraulic Drive System in a Storm Surge Barrier M. Fluks p. 150
- Analysis of Failure Modes of a Military Hydraulic Fluid: MIL-H-46170 R. B. Mowery and E. M. Purdy p. 167
- Session III-A Failure Analysis Part II
- Wear Particle Analysis J. Poley p. 179
- Problems and Possibilities with Bottle Sampling for Assessment of Particle Concentration G.
- C. Svedberg and K. Sundvall p. 190
- Wear and Wear Debris in a Changing World B. J. Roylance p. 200
- Advanced Strategies for the Monitoring and Control of Water Contamination in Oil Hydraulic Fluids D. D. Troyer p. 214
- Advancements in Fluid Analysis Technologies and Strategies for Hydraulic System Condition-Based Maintenance J. C. Fitch p. 225
- Hydraulic Pump Contaminant Wear R. K. Tessmann and I. T. Hong p. 248

• Piston Pump Failures in Various Type Hydraulic Fluids S. Ohkawa and A. Konishi and H. Hatano and D. Voss p. 263

- Fundamental Hydraulic Wear Processes H. Liang and K. Mizuno and G. E. Totten and R. J. Bishop, Jr. and S. Lemberger p. 278
- Analysis of Common Failure Modes of Axial Piston Pumps C. G. Fey and G. E. Totten and Y. H. Sun p. 299
- Effect of Pump Inlet Conditions on Hydraulic Pump Cavitation: A Review R. J. Bishop, Jr. and G. E. Totten p. 318
- The Influence of Surface Topography and Environment on the Fatigue Life of a Hydraulic Motor W. Scott p. 333
- TRIZ-Based Root Cause Failure Analysis for Hydraulic Systems D. L. Mann and E. J. Hughes p. 340

• Session IV-A Materials

• The Surface Behavior of Metallic Materials During the Incubation Period of Cavitation Erosion A. Yabuki and K. Noishiki and K. Komori and M. Matsumura p. 357

- Failure Mechanism of a Hydraulic Log Piston and Slipper Assembly J. T. Sikes p. 370
- Development of Pseudoelastic TiNi Tribo Materials D. Y. Li p. 382

• Research of Suitable Material Pairs for Applications Operating with High Water-Based Fluids R. Oberem and H. Murrenhoff p. 402

- Ceramic Parts for Hydrostatic Pumps and Motors D. G. Feldmann p. 417
- PVD-Coatings-Applications in Fluid Power Technology D. Van Bebber and H. Murrenhoff p. 427
- Improving Tribological Performance of Mechanical Components by Laser Surface Texturing I. Etison and G. Halperin and G. Ryk p. 441
- Session III-B Components--Seals, Valves, and Rolling Element Bearings
- An Investigation of Fundamental Blistering Phenomena in Rotary Lip Sealing F. Schulz and V. M. Wollesen and M. Votter p. 451

• Influence of Lubrication on Wear and Friction on O-Rings in Contact with Yellow Metal M. Votter and O. Schultz p. 462

• Hydraulic Valve Problems Caused by Oil Oxidation Products A. Sasaki p. 474

• Rust Inhibitor Contamination-Related Problems in Military Aircraft Hydraulic Systems S. K. Sharma and C. E. Synder, Jr. and L. J. Gschwender and J. C. Liang and B. F. Schreiber p. 489

- Extending Rolling Element Bearing Life in Hydraulic Systems with Water-Based Fluids-The Grease Lubrication Option G. W. Poll p. 500
- Session IV-B Fluids
- The Importance of Shear Stability in Multigraded Hydraulic Fluids C. W. Hyndman and B.
- G. Kinker and D. G. Placek p. 523
- Corrosive Wear Behavior of 304 Stainless Steel and its Variation with Alloyed Oxygen-Active Element Yttrium T. Zhang and D. Y. Li p. 535
- A Study of the Mechanism for Beneficial Effects of Yttrium Additive in Lubricant on Corrosive Wear and Friction of Metals R. Liu and D. Y. Li p. 549
- The Effect of Oil Type on Wear in Fluid Power Components T. Koivula and R. Karjalainen and E. Ellman and M. Vilenius p. 563

• Recent Experiences with Ester Based Fluids in Qualification Tests D. G. Feldmann and M. Kessler p. 575