

## TABLE OF CONTENTS

2005-01-2756	<b>Mars Base Zero—A Terrestrial Analog</b> .....	1
	Alan Drysdale and Ray Collins	
2005-01-2762	<b>Space Flight Biomedical Deterioration Prevention and Correction Using Biophotonic Technology: From Postural Deficiency Syndrome to Space Adaptation Syndrome</b> .....	13
	Philippe Souvestre and Clinton Landrock	
2005-01-2763	<b>Role of Environmental Factors in Immunity and Infectious Disease Risk</b> .....	26
	Duane L. Pierson, Satish K. Mehta, Rebekah J. Bruce, and C. Mark Ott	
2005-01-2766	<b>Space Laboratory on a Tabletop—A Next-Generation ECLSS Design and Diagnostic Tool</b> .....	34
	Narayanan Ramachandran and Jay Perry	
2005-01-2768	<b>Analysis of the Effect of Age on Shuttle Orbiter Lithium Hydroxide Canister Performance</b> .....	41
	Peter L. McCloud, Brian R. Dunaway, John C. Graf, and Curtis A. Stephenson	
2005-01-2769	<b>Columbus Active Thermal Control Equipment Development</b> .....	49
	Jan Persson, Ettore Mascellani, Alberto Pavarani, Paolo Vaccaneo, and Zoltan Szigetvari	
2005-01-2774	<b>Characterization of Nutrient Solution Changes During Flow Through Media</b> .....	58
	Joey H. Norikane, John C. Sager, Raymond M. Wheeler, Gary W. Stutte, and Hyeon-Hye Kim	
2005-01-2777	<b>International Space Station Environmental Control and Life Support System Status: 2004 - 2005</b> .....	64
	David E. Williams and Gregory J. Gentry	
2005-01-2784	<b>AAH, The Latest Development in Microgravity Animal Research</b> .....	76
	Jeffery T. Iverson, Mark C. Lee, and Jeffery C. Emmerich	
2005-01-2785	<b>Liquid Waste Control in Micro-G: Designing a Capillary-Wicking Liner for the Specimen Chamber of the Advanced Animal Habitat (AAH)</b> .....	83
	Rodney W. Ginter, Javier R. Morell, and Steven R. Collicott	
2005-01-2795	<b>Integrated Computational Fluid Dynamics Carbon Dioxide Concentration Study for the International Space Station</b> .....	89
	Chang H. Son, Edward H. Turner, Evgueni M. Smirnov, Nikolay G. Ivanov, and Denis S. Telnov	
2005-01-2796	<b>Improving the Columbus Integrated Overall Thermal Mathematical Model (IOTMM) Using Computational Fluid Dynamics (CFD)</b> .....	95
	Alexander Rodriguez, Jan Persson, Johannes Witt, and Paolo Vaccaneo	
2005-01-2797	<b>Computational Fluid Dynamic Analysis of Air Flow in Node 1 of the International Space Station</b> .....	101
	Darrah Speiser, David Pines, and Chang H. Son	

<b>2005-01-2798</b>	<b>Node 1 With Advanced Resistive Exercise Device: Computational Fluid Dynamics Modelling</b> .....	<b>106</b>
	Chang H. Son, Evgueni M. Smirnov, Nikolay G. Ivanov, and Denis S. Telnov	
<b>2005-01-2799</b>	<b>Analysis of Carbon Dioxide Concentration in the Shuttle Orbiter Middeck for the Launch on Need (LON) Mission</b> .....	<b>112</b>
	Chang H. Son, Brian R. Dunaway, Evgueni M. Smirnov, Nikolay G. Ivanov, and Denis S. Telnov	
<b>2005-01-2827</b>	<b>Mars Exploration Rover Surface Mission Flight Thermal Performance</b> .....	<b>118</b>
	Keith S. Novak, Charles J. Phillips, Eric T. Sunada, and Gary M. Kinsella	
<b>2005-01-2828</b>	<b>Mars Science Laboratory Thermal Control Architecture</b> .....	<b>130</b>
	Pradeep Bhandari, Gajanana Birur, Michael Pauken, Anthony Paris, Keith Novak, Mauro Prina, Brenda Ramirez, and David Bame	
<b>2005-01-2830</b>	<b>Sensitivity of Solar Energetic Particle Event Doses to Spectral Hardness</b> .....	<b>138</b>
	Christina E. Campbell, Thomas M. Miller, Theodore F. Nichols, John R. Edwards, Hanna M. Moussa, and Lawrence W. Townsend	
<b>2005-01-2832</b>	<b>Radiation Environment Modelling for the Planet Mars</b> .....	<b>142</b>
	G. De Angelis, F. F. Badavi, S. R. Blattnig, M. S. Cloudsley, G. D. Qualls, R. C. Singleterry, and J. W. Wilson	
<b>2005-01-2833</b>	<b>Nuclear Radiation Fields on the Mars Surface: Risk Analysis for Long-Term Living Environment</b> .....	<b>157</b>
	Brooke M. Anderson, Martha S. Cloudsley, Garry D. Qualls, and John E. Nealy	
<b>2005-01-2834</b>	<b>Parametric Shielding Strategies for Jupiter Magnetospheric Missions</b> .....	<b>165</b>
	Bill Atwell, Brandon Reddell, Bill Bartholet, John Nealy, Martha Cloudsley, Brooke Anderson, Thomas Miller, and Lawrence W. Townsend	
<b>2005-01-2835</b>	<b>Radiation Passive Shield Analysis and Design for Space Applications</b> .....	<b>179</b>
	Horia Mihail Teodorescu and Al Globus	
<b>2005-01-2836</b>	<b>International Space Station Water Usage Analysis</b> .....	<b>189</b>
	Cynthia L. Philistine	
<b>2005-01-2866</b>	<b>Resistively Heated Microlith-Based Adsorber for Carbon Dioxide and Trace Contaminant Removal</b> .....	<b>197</b>
	S. Roychoudhury, D. Walsh, and J. Perry	
<b>2005-01-2868</b>	<b>Performance Characterization of a Prototype Ultra-Short Channel Monolith Catalytic Reactor for Air Quality Control Applications</b> .....	<b>205</b>
	J. L. Perry, K. M. Tomes, S. Roychoudhury, and J. D. Tatara	
<b>2005-01-2872</b>	<b>An Environmental Sensor Technology Selection Process for Exploration</b> .....	<b>217</b>
	Paul D. Mudgett, Nigel J. Packham, and Darrell L. Jan	

2005-01-2880	<b>Expanding the Analyte Set of the JPL Electronic Nose to Include Inorganic Species</b> .....	225
	M. A. Ryan, M. L. Homer, H. Zhou, K. Manatt, A. Manfreda, A. Kisor, A. V. Shevade, and S. P. S. Yen	
2005-01-2883	<b>Advances in Two-Phase Loop with Capillary Pump Technology and Space Applications</b> .....	233
	Donatas Mishkinis, Guanghan Wang, Darius Nikanpour, Erin MacDonald, and Tarik Kaya	
2005-01-2885	<b>Chemical Analysis of ISS Potable Water From Expeditions 8 and 9</b> .....	251
	John E. Straub, Debrah K. Plumlee, and John R. Schultz	
2005-01-2886	<b>Microbial Surveillance of Potable Water Sources of the International Space Station</b> .....	283
	Rebekah J. Bruce, C. Mark Ott, Vladimir M. Skuratov, and Duane L. Pierson	
2005-01-2888	<b>Diamond Thin-Film Electrodes for Monitoring Heavy Metal Ions in Water Supplies Using Anodic Stripping Voltammetry</b> .....	293
	Elizabeth A. McGaw, Prerna Sonthalia, and Greg M. Swain	
2005-01-2891	<b>Development of Streamlined Methods for Integration Into Multiplexed Colorimetric Solid Phase Extraction (MC-SPE) Analysis of Spacecraft Water</b> .....	300
	John Nordling, Robert J. Lipert, Marc D. Porter, and Daniel B. Gazda	
2005-01-2901	<b>Smart Thermal Protection Systems</b> .....	305
	K. Keller, E. Pfeiffer, P. Gaudenzi, L. Lampani, T. Ullmann, and H. Ritter	
2005-01-2907	<b>Impacts of System Decisions at the Life Support, EVA, and Habitability Interfaces</b> .....	313
	Molly Anderson, Gretchen Thomas, Joe Chambliss, and Bruce Conger	
2005-01-2911	<b>Cassette Factories and Robotic Bricks: A Roadmap for Establishing Deep Space Infrastructures</b> .....	330
	A. Scott Howe	
2005-01-2914	<b>Lunar Architecture and Urbanism, 2nd Ed.</b> .....	354
	Brent Sherwood	
2005-01-2924	<b>Hydrogen Peroxide Treatment of Vegetable Crops</b> .....	362
	M. H. Perchonok and S. J. French	
2005-01-2926	<b>Reheating and Sterilization Technology for Food, Waste and Water: Design and Development Considerations for Package and Enclosure</b> .....	367
	Soojin Jun, Brian Heskitt, Sudhir Sastry, Ritesh Mahna, Joseph Marcy, and Michele Perchonok	
2005-01-2930	<b>Detection of Smoke from Microgravity Fires</b> .....	375
	David Urban, DeVon Griffin, Gary Ruff, Thomas Cleary, Jiann Yang, George Mulholland, and Zeng-guang Yuan	
2005-01-2933	<b>Implications of the VBNC State of B. Cepacia and S. Maltophilia on Bioreduction and Microbial Monitoring of ISS Potable Waters</b> .....	385
	Tara Stuecker, David Newcombe, Myron T. La Duc, Eva Murdock, Randall Sumner, and Kasthuri Venkateswaran	

<b>2005-01-2969</b>	<b>Human and Robotic Enabling Performance System Development and Testing</b> .....	<b>392</b>
	David Graziosi, Jinny Ferl, Keith Splawn, David Akin, Emily Tie, Joseph Kosmo, and Amy Ross	
<b>2005-01-2970</b>	<b>When is Running More Efficient Than Walking in a Space Suit?</b> .....	<b>403</b>
	Christopher E. Carr and Dava J. Newman	
<b>2005-01-2971</b>	<b>Using a Sweating Manikin, Controlled by a Human Physiological Model, to Evaluate Liquid Cooling Garments</b> .....	<b>409</b>
	Robert Farrington, John Rugh, Desikan Bharathan, Heather Paul, Grant Bue, and Luis Trevino	
<b>2005-01-2972</b>	<b>Thermal Analysis of Lightweight Liquid Cooling Garments Using Highly Conductive Materials</b> .....	<b>425</b>
	Grant Bue and Luis Trevino	
<b>2005-01-2974</b>	<b>Zero-Venting, Regenerable, Lightweight Heat Rejection for EVA Suits</b> .....	<b>434</b>
	Michael G. Izenzon, Weibo Chen, and Luis Trevino	
<b>2005-01-2999</b>	<b>Thermal Regulation and Heat Tolerance by Men in Heat Before and After Head-Down Tilt</b> .....	<b>445</b>
	Yu Xue-Jun, Yang Tiande, Pang Cheng, Chang Shaoyong, and Wu Jianmin	
<b>2005-01-3009</b>	<b>Risk Management for Space Human Support Research and Technology</b> .....	<b>453</b>
	Harry Jones	
<b>2005-01-3013</b>	<b>Lessons Learned Operating and Maintaining the Extravehicular Mobility Unit (EMU)</b> .....	<b>464</b>
	Brian J. Johnson and J. Scott Cupples	
<b>2005-01-3032</b>	<b>Urine Processing for Water Recovery Via Freeze Concentration</b> .....	<b>477</b>
	Jeff M. Schmidt and James E. Alleman	
<b>2005-01-3033</b>	<b>Performance Testing of the Vapor Phase Catalytic Ammonia Removal Engineering Development Unit</b> .....	<b>485</b>
	Michael Flynn, Maher Tleimat, Tim Nalette, and Gregory Quinn	
<b>2005-01-3034</b>	<b>Results of VPCAR Pilot Scale and System Level Tests for the Selective Oxidation of Ammonia to Nitrogen and Water</b> .....	<b>493</b>
	David Wickham, Jeffrey Engel, Jianhan Yu, Tim Nalette, Catherine Thibaud-Erkey, and Gregory Quinn	
<b>2005-01-3035</b>	<b>Hydrodynamics of Packed Bed Reactor in Low Gravity</b> .....	<b>504</b>
	Brian J. Motil, Henry K. Nagra, and Vemuri Balakotaiah	
<b>2005-01-3036</b>	<b>Gravity Effects on Premixed and Diffusion-Limited Supercritical Water Oxidation</b> .....	<b>509</b>
	M. C. Hicks, R. W. Lauver, U. G. Hedge, D. G. Hall, and T. J. Sikora	
<b>2005-01-3042</b>	<b>Thermal System Verification and Model Validation for NASA's Cryogenic Passively Cooled James Webb Space Telescope (JWST)</b> .....	<b>518</b>
	Paul E. Cleveland and Keith A. Parrish	

2005-01-3050	<b>Design Study for an Astronaut's Workstation</b> .....	529
	Andreas Vogler	
2005-01-3053	<b>A Tool for Flexible and Rapid Thermal Analysis and Design in Feasibility and Preliminary Phases of Space Projects</b> .....	541
	Matteo Gorlani, Andrea Tosetto, Luca Tentoni, Valter Perotto, and Olivier Pin	
2005-01-3059	<b>Automatic Linear Conductor Generation Solution for Lumped Parameter Models</b> .....	548
	Chris J. Kirtley, Nigel J. Stock, Hans Peter de Koning, and Simon Appel	
2005-01-3061	<b>Modelling and Design of an Ultraviolet Water Disinfection System</b> .....	554
	Zorana Naunovic, Changyue Shen, Dennis A. Lyn, and Ernest R. Blatchley	
2005-01-3063	<b>Development of New Detection Schemes Using Colorimetric-Solid Phase Extraction for Formaldehyde and Other Trace Organic Contaminants in Water</b> .....	563
	April A. Hazen-Bosveld, Robert J. Lipert, James S. Fritz, and Marc D. Porter	
2005-01-3064	<b>Spectrophotometric Color Matching: A Straightforward Alternative to Kubelka-Munk Analysis of Reflectance Data for Readout of Water Quality Monitoring Disks</b> .....	569
	Robert J. Lipert, April Hazen-Bosveld, Marc D. Porter, and Daniel B. Gazda	
2005-01-3065	<b>Applications of Colorimetric Solid-Phase Extraction With Negligible Depletion</b> .....	575
	Neil C. Dias, James S. Fritz, and Marc D. Porter	
2005-01-3075	<b>ISS Internal Active Thermal Control System (IATCS) Coolant Remediation Project</b> .....	580
	Russell H. Morrison and Mike Holt	
2005-01-3076	<b>Microbiological Characterization and Concerns of the International Space Station Internal Active Thermal Control System</b> .....	592
	Monsi C. Roman and Paul O. Wieland	
2005-01-3077	<b>Assessment of Microbiologically Influenced Corrosion Potential in the International Space Station Internal Active Thermal Control System Heat Exchanger Materials: A 6-Month Study</b> .....	606
	Monsi C. Roman, Patrick Macuch, Thomas McKrell, and Ockert J. Van Der Schijff	
2005-01-3084	<b>Lyophilization for Water Recovery III, System Design</b> .....	618
	Eric Litwiller, Martin Reinhard, John Fisher, and Michael Flynn	
2005-01-3090	<b>Development of a Self-Powered Carbon Dioxide Absorption Unit for Use in a DISSUB</b> .....	627
	Mike J. Clarke, Jonathan Carr, and Jonathan Boyle	
2005-01-3093	<b>Study of Long-Term Compound Stability in Dual Sorbent Tubes</b> .....	635
	Thomas Limerio, Steve Beck, Patti Cheng, and Vanessa de Vera	

2005-01-3094	<b>International Space Station Internal Active Thermal Control System: An Initial Assessment of the Microbial Communities Within Fluid From Ground Support and Flight Hardware</b> .....	643
	James Benardini, Jordan Ballinger, Ronald L. Crawford, Monsi Roman, Randall Sumner, and Kasthuri Venkateswaran	
2005-01-3097	<b>Influence of Planetary Protection Guidelines on Waste Management Operations</b> .....	651
	John A. Hogan, John W. Fisher, Julie A. Levri, Margaret S. Race, Kanapathipillai Wignarajah, and Pericles D. Stabekis	
2005-01-3102	<b>STARST<sup>TM</sup> (Science Technology and Research Students): A Hands-On, Interactive, Scientific and Cultural Exchange Lesson</b> .....	664
	Carla V. Goulart, Sherry Woodard, and Kimberly Campbell	
2005-01-3145	<b>Summary of NASA's Extreme Short Take-Off and Landing (ESTOL) Vehicle Sector Activities</b> .....	674
	John Zuk and Douglas A. Wardwell	
2005-01-3149	<b>NASA Heavy Lift Rotorcraft Systems Investigation</b> .....	688
	Wayne Johnson, Gloria K. Yamauchi, and Michael E. Watts	
2005-01-3158	<b>State of the Art in Sub-Scale STOVL Hot Gas Ingestion Wind Tunnel Test Techniques</b> .....	717
	Richard Cook, Peter Curtis, and Peter Fenton	
2005-01-3159	<b>The Design, Development and Testing of a Turbine-Powered Simulator for Hot Gas Ingestion Testing</b> .....	730
	Peter Curtis, Liping Xu, and Paul Ford	
2005-01-3166	<b>Development of a Radio-Controlled Ornicopter: A Single Rotor Helicopter Without Reaction Torque</b> .....	740
	Monique Heiligers, Rolf Kuiper, Theo van Holten, and Stijn van den Bulcke	
2005-01-3169	<b>Simultaneous Non-Interfering (SNI) Operations, FAA Research, Development, and Implementation Efforts</b> .....	756
	Michael Hilbert	
2005-01-3173	<b>The Development and Implementation of a New Surface Erosion Measurement Technique</b> .....	769
	Michael P. Efford, Philip Liston-Smith, and Bob Tognarelli	
2005-01-3177	<b>Executive Summary of Cal Poly/NASA Extreme Short Takeoff and Landing (ESTOL) Work</b> .....	781
	James Richard Young and David W. Hall	
2005-01-3182	<b>Empirical Wake Turbulence Model of Tiltrotor Aircraft</b> .....	793
	Sam Ferguson and Mark E. Dreier	
2005-01-3185	<b>Springtail EFV/Dragonfly UMR</b> .....	809
	Robert Bulaga	
2005-01-3186	<b>Ducted Fan Efficiency and Noise</b> .....	819
	Robert Bulaga	
2005-01-3187	<b>Continued Computational Investigation Into Circulation Control for the V-22 Osprey Download Reduction</b> .....	824
	Brian M. O'Hara, Gerald M. Angle, Wade W. Huebsch, and James E. Smith	

2005-01-3188	<b>Download Alleviation on a V-22 Model Having a Simple Flap Used in Conjunction With Periodic Excitation, Suction and Blowing</b> .....	831
	M. Schmalzel, P. Varghese, and I. Wygnanski	
2005-01-3191	<b>Pneumatic Solutions for Extreme STOL Aircraft Critical Technologies</b> .....	844
	Robert J. Englar	
2005-01-3192	<b>A Propulsion Concept for Circulation Control Wing Technology</b> .....	876
	Trajaen J. Troia and Mark H. Waters	
2005-01-3195	<b>Improving the Harrier: Projected Developments of the Pioneering V/Stol Combat Aircraft 1957-1990</b> .....	885
	Michael J. Pryce, Chris Farara, and Michael J. Hirschberg	
2005-01-3197	<b>Design Guidelines for Flapping-Wing Micro UAVs</b> .....	897
	Salman A. Ansari, Kevin Knowles, and Rafał Zbikowski	
2005-01-3198	<b>Wake Structure Diagnostics of a Flapping Wing MAV</b> .....	907
	Manikandan Ramasamy, J. Gordon Leishman, and Beerinder Singh	
2005-01-3200	<b>Exploratory Business Case Study for an Extreme Short Take-Off and Landing Transport</b> .....	920
	Matthew Peperak and Jacob Burns	
2005-01-3258	<b>The Art of Conducting a Safety Risk Analysis on In-Service Problems</b> .....	932
	Robert Mattern	
2005-01-3267	<b>Safety and Design Considerations for the Cooperative Avionics Test Bed (CATBird) Aircraft</b> .....	938
	Edward J. Delehant	
2005-01-3287	<b>Investigation of Welded Preforms for Use in Forging</b> .....	946
	Joseph Domblesky and Frank Kraft	
2005-01-3290	<b>HdH Composite Assembly and Mobile Automation</b> .....	955
	P. J. Crothers, A. McConville, N. Lukies, P. Steele, G. Lam, and A. Nesbit	
2005-01-3298	<b>A Next-Generation Drilling Machine—A Search for Greater Quality</b> .....	965
	Paul Shemeta and Lyle Wallace	
2005-01-3300	<b>Sideways Collar Anvil for Use on A340-600</b> .....	972
	Scott Tomchick, Peter Zieve, Carter Boad, and Adam Wellsbury	
2005-01-3304	<b>F/A-22 Sustainability—Supporting Mission and Operational Success</b> .....	977
	Arline Denny and Jared Scott	
2005-01-3305	<b>Approaches to Innovations in the Aerospace Sector Through Green Engineering and Green Chemistry</b> .....	987
	Julie Beth Zimmerman and Paul Thomas Anastas	
2005-01-3306	<b>Nanocrystalline Materials From Aerospace Machining Chips</b> .....	994
	Y. Uluca, B. C. Rao, M. Ravi Shankar, T. L. Brown, J. B. Mann, S. Chandrasekar, and W. D. Compton	

2005-01-3307	<b>Electromagnetic Forming of Various Aircraft Components</b> .....	999
	Pradip K. Saha	
2005-01-3308	<b>Developments in Assembly Technology at Stork Fokker</b> .....	1010
	L. Muys and J. Bloem	
2005-01-3314	<b>The Application of VCCT for ABAQUS® to Prediction and Simulation of Delamination Growth in Composite Structures</b> .....	1020
	Mohan Rathinasabapathy	
2005-01-3317	<b>Machining-Induced Residual Stress and Distortion</b> .....	1030
	Keith A. Young, Sebastian Nervi, and Barna Szabo	
2005-01-3318	<b>Flex Track for Use in Production</b> .....	1039
	Paul Thompson, John Hartmann, Ed Feikert, and Jim Buttrick	
2005-01-3319	<b>Panel Loaders for A380</b> .....	1046
	Chuck Hopper, Theodore Karagias, Laurence Durack, Al Ferguson, and Jim Rowe	
2005-01-3322	<b>Compression Buckling Behavior of 7075-T6 Aluminum Skin Stiffened Panels Fabricated by Friction Stir Welding</b> .....	1053
	Anil K. Patnaik, Josh Schurger, Annicia Streete, Casey D. Allen, and William J. Arbegast	
2005-01-3323	<b>Visualization of Material Flow in Friction Stir Spot Welding</b> .....	1062
	K. H. Muci-Küchler, S. K. Itapu, W. J. Arbegast, and K. J. Koch	
2005-01-3327	<b>Strategies for Burr Minimization and Cleanability in Aerospace and Automotive Manufacturing</b> .....	1073
	Miguel Ávila, Joel Gardner, Corinne Reich-Weiser, Shantanu Tripathi, Athulan Vijayaraghavan, and David Dornfeld	
2005-01-3331	<b>Damage Tolerance Analysis and Testing of Unbalanced Bonded Composite Repairs for Aluminum Airframes</b> .....	1083
	D. P. Romilly and R. J. Clark	
2005-01-3333	<b>Process Parameter Development and Fixturing Issues for Friction Stir Welding of Aluminum Beam Assemblies</b> .....	1093
	W. J. Arbegast and A. K. Patnaik	
2005-01-3336	<b>Robot Capability Test and Development of Industrial Robot Positioning System for the Aerospace Industry</b> .....	1108
	Mark Summers	
2005-01-3338	<b>Biodegradable/Compostable Composites From Lingo-Cellulosic Fibers for Automotive Applications</b> .....	1119
	M. G. Kamath, Gajanan S. Bhat, D. Mueller, and D. V. Parikh	
2005-01-3343	<b>One-Sided Assembly With Mobile Platforms</b> .....	1130
	Claude Cibuel and Keith Brunell	
2005-01-3346	<b>Surface Integrity of Al 7050-T7451 and Al 6061-T651 Induced by High Speed Milling</b> .....	1135
	S. C. Ammula and Y. B. Guo	
2005-01-3356	<b>Model-Based Reasoning for Aviation Safety Risk Assessments</b> .....	1144
	James T. Luxhøj	



2005-01-3357	<b>Development of a Fuzzy Expert System for Aviation Risk Modelling</b> .....	1155
	Michael Hadjimichael and John McCarthy	
2005-01-3359	<b>Relationship of Wing Drag to Entropy Production</b> .....	1159
	David Nixon	
2005-01-3360	<b>Feasibility of Modelling Wake Vortices in Ground Effect in a Water Tunnel</b> .....	1172
	K. Rokhsaz and L. K. Kliment	
2005-01-3367	<b>Decision Facilitator for Launch Operations Using Intelligent Agents</b> .....	1182
	Rajkumar Thirumalainambi and Jorge Bardina	
2005-01-3368	<b>On the Development of a Comprehensive Hazard Modelling Tool Through Distributed Simulation: Learning From the Columbia Space Shuttle Accident</b> .....	1186
	Serge N. Sala-Diakanda, Luis C. Rabelo, and José A. Sepúlveda	
2005-01-3370	<b>Machine Learning for Rocket Propulsion Health Monitoring</b> .....	1192
	Mark Schwabacher	
2005-01-3371	<b>Machine Learning for Detecting and Locating Damage in a Rotating Gear</b> .....	1198
	Uponder K. Kaul and Nikunj C. Oza	
2005-01-3374	<b>A Propulsion Device for Spacecraft</b> .....	1203
	Joseph M. Brady	
2005-01-3375	<b>Mechanisms for Downstream Ice Growth</b> .....	1212
	Egemen Ogretim, Wade W. Huebsch, Jim Narramore, and Bob Mullins	
2005-01-3377	<b>A Prototype Probe For Direct Measurement of the LWC in SLD Clouds</b> .....	1220
	S. C. Tan and M. Papadakis	
2005-01-3381	<b>Intentional Navigation and Phase Transition Analysis in Amygdala of KIV Model</b> .....	1227
	Ming Chuen (Derek) Wong, Mark Myers, Robert Kozma, R. Murat Demir, and Rajkumar Thirumalainambi	
2005-01-3382	<b>Limit Cycle Oscillations in Random Cellular Automata</b> .....	1233
	Derek Wong and Marko Puljic	
2005-01-3383	<b>Navigation in a Challenging Martian Environment Using Data Mining Techniques</b> .....	1239
	Ming Chuen (Derek) Wong, King-Ip Lin, and Rajkumar Thirumalainambi	
2005-01-3384	<b>Air and Ground Simulation of Terminal-Area Traffic Management With Airborne Spacing</b> .....	1247
	Todd J. Callantine, Paul U. Lee, Joey Mercer, Thomas Prevôt, and Everett Palmer	
2005-01-3385	<b>Implementation of HIL Testing Systems for Aerospace ECUs</b> .....	1257
	Jace L. Allen	

2005-01-3386	<b>Spaceport Simulation Models Integration</b> .....	1264
	Mario F. Marín, Luis C. Rabelo, and José A. Sepúlveda	
2005-01-3387	<b>Estimating the Effects of Crew Number and Crew Fatigue on the Control of Tactical Unmanned Aerial Vehicle (TUA VS)</b> .....	1271
	Brett Walters and Jon French	
2005-01-3389	<b>Reliability of the Engine Electronic Controls and a Novel Approach to Improve Service Life</b> .....	1276
	Sharanpal (Paul) S. Sikand, Sham S. Hariram, and Jayant (Jay) Patel	
2005-01-3390	<b>System Software Safety Assessment Process for Certification of Commercial and Military Aircraft</b> .....	1285
	Rohit P. Sheth	
2005-01-3391	<b>Development and Testing of a Wing Morphing Mechanism for the Control of a Swept Wing Tailless Aircraft</b> .....	1296
	Richard Guiler and Wade Huebsch	
2005-01-3392	<b>Design and Flight Testing of Inflatable Wings With Wing Warping</b> .....	1306
	Jamey D. Jacob, Andrew Simpson, and Suzanne Smith	
2005-01-3393	<b>Technology Assessment of a Supersonic Business Jet</b> .....	1316
	Jeffrey S. Schutte, Dimitri N. Mavris, and Michelle R. Kirby	
2005-01-3398	<b>Supersonic Business Jet Design and Requirements Exploration Using Multiobjective Interactive Genetic Algorithms</b> .....	1327
	Michael Buonanno and Dimitri N. Mavris	
2005-01-3399	<b>Conceptual Design of Current Technology and Advanced Concepts for an Efficient Multi-Mach Aircraft</b> .....	1343
	Hernando Jiménez and Dimitri N. Mavris	
2005-01-3400	<b>Variable Cycle Optimization for Supersonic Commercial Applications</b> .....	1354
	Russel K. Denney, Jimmy C. Tai, Brian K. Kestner, and Dimitri N. Mavris	
2005-01-3404	<b>Model-Based Synthesis of Noise in Aircrafts</b> .....	1362
	Karl Janssens, Patrick Van de Pongseele, Antonio Vecchio, Herman Van der Auweraer, Bill Flynn, and Dries Berckmans	
2005-01-3405	<b>Micro-Flying Robotics in Space Missions</b> .....	1368
	Jorge Bardina and Rajkumar Thirumalainambi	
2005-01-3406	<b>Engineering a Space-Based Construction Robot</b> .....	1375
	Ravi Vanmali, Brandon Tomlinson, Bryan Li, Sam Wanis, and Narayanan Komerath	
2005-01-3407	<b>Preliminary Design and Vibration Study of Micro-Satellite Structure</b> .....	1383
	K. Suresh and K. Jayaraman	
2005-01-3412	<b>Silicon-Based Fuels for Space Flight</b> .....	1394
	David Padanyi-Gulyas and Andras D. Bodo	
2005-01-3413	<b>A New Approach for Single Stage Ascent to Orbit—Silane Fuel in a New Vehicle Design</b> .....	1400
	David Padanyi-Gulyas and Andras D. Bodo	

2005-01-3415	<b>Actual Accuracy in Flight Data Collection and Analysis</b> .....	1406
	Thomas L. Lagó and Anders Brandt	
2005-01-3416	<b>Smoothing Runway Travel to Improve Safety and Lower Maintenance Costs—A New Type of Aircraft Landing Gear Promises Safer and More Comfortable Travel</b> .....	1412
	Koji Yoshioka, Akira Sone, Arata Masuda, and Hiroya Yamashita	
2005-01-3418	<b>Phase Compensated Rate Limiters for Alleviation of Pilot-Induced Oscillations Caused by Control Surface Rate Limiting</b> .....	1427
	Eric R. Kendall	
2005-01-3420	<b>Response of an Advanced Flight Control System to Microburst Encounters</b> .....	1432
	K. Rokhsaz, J. E. Steck, R. Chandramohan, and B. Singh	
2005-01-3421	<b>Analysis of Active Flutter Suppression with Leading- and Trailing-Edge Control Surfaces Via <math>\mu</math>-Method</b> .....	1442
	Ying Teng and Hsin-Piao Chen	
2005-01-3422	<b>Investigations on Inflatable Ring Wing of a Compact Type Roadable Aircraft</b> .....	1459
	Madoka Nakajima, Atushi Yanagisawa, Hiroshige Kikukawa, and Toichi Fukasawa	
2005-01-3428	<b>Fuel Tank Safety on Airplanes</b> .....	1466
	Sharanpal (Paul) S. Sikand, Sham S. Hariram, and Darsh Aggarwal	
2005-01-3429	<b>Fire Protection on Airplanes</b> .....	1475
	Sham S. Hariram	
2005-01-3430	<b>Integrated Ceramic Composite Firewall</b> .....	1481
	David T. Misciagna and Dennis J. Landi	
2005-01-3433	<b>Program and Design Decisions in an Uncertain and Dynamic Market: Making Engineering Choices Matter</b> .....	1486
	Peter Hollingsworth, Holger Pfänder, and Dimitri N. Mavris	
2005-01-3434	<b>A Concept Selection Method Developed From a Probabilistic Multi-Criteria Decision-Making Technique Using Utility Theory</b> .....	1496
	Yongchang Li, Peter Hollingsworth, and Dimitri Mavris	
2005-01-3435	<b>A Collaborative Design Environment to Support Multidisciplinary Conceptual Systems Design</b> .....	1508
	Jan Osburg and Dimitri Mavris	
2005-01-3436	<b>Adsorption and Desorption Effects on Carbon Brake Material Friction and Wear Characteristics</b> .....	1517
	John A. Tanner and Matt Travis	
2005-01-3437	<b>Predicting Landing Gear Carbon Brake Vibration and Performance Via Subscale Test and Analysis</b> .....	1535
	Matt H. Travis	
2005-01-3438	<b>Mechanical Properties of Radial-Ply Aircraft Tires</b> .....	1545
	John A. Tanner, Robert H. Daugherty, and Henry C. Smith	
	<b>Index</b> .....	1559