

Annual Technical Meeting of the Institute of Environmental Sciences and Technology 2010

(ESTECH 2010)

**Reno, Nevada, USA
3-6 May 2010**

Volume 1 of 2

ISBN: 978-1-61738-638-1

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2010) by IEST
All rights reserved.

Printed by Curran Associates, Inc. (2010)

For permission requests, please contact IEST
at the address below.

IEST
Arlington Place One
2340 South Arlington Heights Road, Suite 100
Arlington Heights, IL 60005-4516

Phone: (847) 981-0100
Fax: (847) 981-4130

iest@iest.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Volume 1

CONTAMINATION CONTROL/CLEANROOM SEMINARS

Acoustics: Designing to Reduce the Impact of Low Frequency Sound (Including Infrasound) on Imaging Equipment in Nanoscale Research.....	1
<i>Michael Gendreau</i>	
Conducting an Airflow Visualization Study.....	52
<i>Matt Smyers</i>	
Alternative Method for Airborne Contamination Control in Cleanrooms in Only Few Hours.....	74
<i>Caroline Johnston</i>	
Cleanrooms and Associated Controlled Environments.....	100
<i>Anne Marie Dixon</i>	
Cleanroom Airflow Rate Modeling and Fan Energy Conservation Strategies.....	131
<i>Wei Sun, John Mitchell, Keith B. Flyzik, R. Vijayakumar, Shih-Cheng Hu, Junjie Liu, Hiro Fukuda</i>	
Improving Curtain Designs in a Pharmaceutical Sterile Storage Room, a Case Study.....	181
<i>George Lei</i>	
Formation Index and High Performance Filter Media.....	198
<i>Randall Keisler</i>	
Update on ISO Technical Committee 229 Nanotechnologies.....	221
<i>David S. Ensor</i>	
Comparison of Materials Used in Airflow Visualization Studies.....	236
<i>Matt Smyers</i>	
Vibrations: Measured Performance of Newly Designed.....	260
<i>Hal Amick</i>	
Nanotechnology Fiber in Wet-Laid Depth Media.....	286
<i>Michael Graff</i>	
Particle Counting Method in New China Standard.....	307
<i>Xin Feng</i>	
Performance Study of Visible-Light Regenerative Activated Carbon Combined with Nitrogen-Doped Titanium	335
<i>Zhenhai Li</i>	
Performance Testing of Fan Filter Unit (FFU)	351
<i>Zhongping Lin</i>	
Standardization for Air Filters in China	381
<i>Jie Cai</i>	
Experimental and Model Research on the Survival and Reentrainment of Airborne Microbes on Fibrous Ventilation Filter	391
<i>Junjie Liu</i>	
Testing HEPA Filters with Particle Counters	410
<i>Dan Milholland</i>	
Transmission of Airborne Contaminants in Airliner Cabins.....	434
<i>Qingyan (Yan) Chen</i>	
Application of High-Intensity Ultrasonics in Nanotechnology: Sono-Fragmentation.....	460
<i>R. Nagarajan, P. Doggolu, K. Khinchi, K. R. Gopi</i>	

DESIGN, TEST, AND EVALUATION/PRODUCT RELIABILITY SEMINARS

Farewell to a Giant: Allan Piersol's Pyroshock Contributions.....	511
<i>Vesta I. Bateman</i>	
Analyzing and Modeling Modern Military Forklifts	522
<i>George O. White</i>	
How to Design Accelerated Reliability Demonstration and Assurance Tests Physics of Failure Principles.....	545
<i>Milena Krasich</i>	

Defining Your Environmental Chamber Requirements with an Emphasis on Alternative Energy Testing	587
<i>Mark Chrusciel</i>	

Volume 2

Full Vehicle Environmental Testing.....	643
<i>William Arvo</i>	
How to Resolve Fixture Issues –3 Case Studies.....	664
<i>Terry Liu</i>	
Mil Std 810G	691
<i>Fred Fey</i>	
Practical Aspects of Mil-Std 810G Reports Generation.....	797
<i>Andy Anderson</i>	
Some of the Most Needed MIL-STD-810G Tests and Their Changes.....	813
<i>Chris Peterson</i>	
MIL-STD-810G Reports	914
<i>Chris Peterson</i>	
Status and Design Features of the New NASA GRC Reverberant Acoustic Test Facility (RATF)	963
<i>William O. Hughes, Mark E. McNelis, Aron D. Hozman, Anne M. McNelis</i>	
Status and Design Features of the New NASA GRC Mechanical Vibration Facility (MVF)	985
<i>Kim D. Otten, Vicente J. Suarez, Dzu K. Le</i>	
Experimentally Evaluating a New Vibration Test Fixture.....	1014
<i>Wayne Tustin</i>	
Allan Piersol's Contributions to Nonstationary Random Process Modeling.....	1027
<i>Thomas L. Paez</i>	
Pseudo Velocity Implementation Progress in Mechanical Shock Analysis.....	1048
<i>Howard A. Gaberson</i>	
Psuedo-Damage as an Assessment Method for Adjustable Mount Bracketry on Military Combat Vehicles.....	1101
<i>Michael McCullough</i>	
Shock Tests Based on Peak Acceleration and Velocity.....	1119
<i>David O. Smallwood</i>	
Solar Array Acoustic Test Predictions.....	1137
<i>Jack Arends</i>	
Sources of Corrupted Pyroshock Data.....	1159
<i>Vesta I. Bateman</i>	
Stochastic & Stationary Processing.....	1193
<i>Dick Foss</i>	
Utilizing Vehicle Test Data When Conducting Physics of Failure Analysis of On-Board Electronics	1205
<i>Christopher Davies, Richard Heine</i>	
Validation and Verification in Numerical Simulation and Physical Environmental Testing.....	1218
<i>Markku Juntunen</i>	
The Vibration Test Curve: Where Did That Come From?	1243
<i>Roger Bemont</i>	
Author Index	