

MEPTEC

6th Annual MEPTEC MEMS
Symposium
2008

“MEMS Market Evolution: From Technology
Push to Market Pull”

May 22, 2008
San Jose, California, USA

Printed from e-media with permission by:

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

ISBN: 978-1-60560-627-9

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

Copyright© (2008) by MEPTEC.
All rights reserved.

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

MEPTEC
P.O. Box 222
Medicine Park, Oklahoma 73557

TABLE OF CONTENTS

Keynote Speech

Biomedical Innovations by BioPOETIC Packaging	1
<i>L.P. Lee</i>	

Special Report

MEMS Industry Group Research Findings and Recommendations on MEMS Packaging	45
<i>K. Lightman</i>	

Session One

Introduction: Consumer MEMS – Becoming a Dominant Market Force in 2008	53
<i>J.R. Mallon Jr.</i>	
Size Reduction and Integration of RF Filters in Cellular Phones	54
<i>M. Gat</i>	
Three-Axis Motion Sensor Development and Production for Consumer Electronics Market	73
<i>K. Yang</i>	
MEMS Timing – More Function in a Smaller Package.....	98
<i>A. Partridge</i>	

Session Two

Introduction: Automotive MEMS: Driving Innovation	113
<i>J. Heck</i>	
Solid State, Single Cell Electrochemical Sensor for Improved Emissions Control.....	114
<i>J. Rheaume</i>	
Sensors at Sensata: Recent and Emerging Applications in Powertrain and Safety Systems	126
<i>V. Chandrasekaran</i>	
Green “Killer Application”: Wireless Tire Pressure Monitoring	136
<i>J. Bryzek, J.R. Mallon Jr.</i>	

Session Three

Introduction: MEMS and Biomedicine	161
<i>S. Cahill</i>	
Packaging of BioMEMS Devices	162
<i>L. Field</i>	
Disposable Microsyringe for Single Dose Vaccine Delivery	179
<i>Z.O. Lee</i>	
Aluminum Nitride-based Actuators for Tunable Terahertz Electronics	180
<i>M. Jarrahi</i>	

Session Four

Impact of Emerging Wafer Level Packaging and 3D ICs on MEMS Foundries and MEMS Industry	191
<i>J. Bryzek</i>	
WLP for MEMS: Strong Adoption of the Technology from Industrial to Consumer Applications.....	192
<i>J.C. Eloy</i>	
3D Packaging Technologies on Microsystems.....	204
<i>L. Hermans</i>	
Packaging and SIP Approaches from a MEMS Foundry Perspective	224
<i>M. Rimskog</i>	

Author Index