

# Advances in Polyolefins 2003

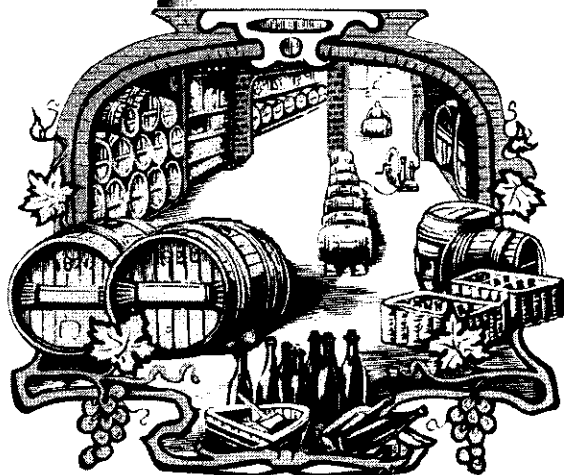
*October 5-8, 2003  
Sonoma Doubletree Hotel  
Rohnert Park, California*

## Co-Organizers:

**James E. McGrath, Ph.D.**  
University Distinguished Professor  
Materials Research Institute and  
Department of Chemistry  
Virginia Tech (0344)  
2108 Hahn Hall  
Blacksburg, VA 24061 USA  
Phone: 540-231-5976  
Fax: 540-231-8517  
E-mail: [jmcgrath@vt.edu](mailto:jmcgrath@vt.edu)

**Dr. Pal Arjunan**  
ExxonMobil Chemical Corporation  
Baytown Polymer Center  
5200 Bayway Drive  
Baytown, TX 77522  
[pal.arjunan@exxonmobil.com](mailto:pal.arjunan@exxonmobil.com)

**Dr. Thomas Hanlon**  
Albemarle Corporation  
(retired)



DIVISION OF POLYMER CHEMISTRY  
AMERICAN CHEMICAL SOCIETY





# PROGRAM & SPEAKER TABLE OF CONTENTS

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## Sunday, October 5, 2003

6:00 PM **REGISTRATION AND WELCOMING RECEPTION**

7:30 PM James E. McGrath, *Virginia Tech*  
Overview and Objectives of the workshop

7:45 PM Kenneth Sinclair, *Sta\* Research*  
"Polyolefins: Current and Future Prospects" **1**

## Monday, October 6, 2003

7:30 AM **CONTINENTAL BREAKFAST**

INVITED LECTURE SESSION I

DISCUSSION LEADER: MAURICE BROOKHART

8:15 AM Steven Ittel, *DuPont Central Research*  
"Recent Advances in DuPont's Versipol® Polymerization Technologies" **2**

9:00 AM Tobin Marks, *Northwestern University*  
"Nuclearity Effects in Single- and Multi-Site Polymerization Catalysts Designed for New Polymer Architectures" **3**

9:45 AM Walter Kaminsky, *University of Hamburg, Germany*  
"Highly Syndiotactic Polypropylenes and Nano-Composite By Metallocene Catalysis" **4**

10:30 AM **BREAK**

INVITED LECTURE SESSION II

DISCUSSION LEADER: TOBIN MARKS

10:45 AM Maurice Brookhart, *University of North Carolina-Chapel Hill*  
"To Be Announced" **5**

11:30 AM Vernon Gibson, *Imperial College of Science, Technology & Medicine, England*  
"New Olefin Oligomerization and Polymerization Catalysts Supported by Bidentate and Tridentate Schiff Base Ligands" **6**

12:15 PM **LUNCH**

INVITED LECTURE SESSION II cont'd

DISCUSSION LEADER: PAT BRANT

1:30 PM Duncan F. Wass, *BP-Chemicals Stream*  
"Phosphine Ligands for Ethylene Polymerization and Trimerization Catalysis" **7**

2:15 PM Bob Waymouth, *Stanford University*  
"To Be Announced" **8**

3:00 PM Gary Diamond, *Symyx Technologies*  
"Recent Polyolefin Catalyst Advances through High-Throughput Technology" **9**

3:45 PM **BREAK**

INVITED LECTURE SESSION IV

DISCUSSION LEADER: WALTER KAMINSKY

4:00 PM Pat Brant, *Exxon Mobil Chemical Company*  
"Olefin Polymerization Catalysis on Supports" **10**

4:45 PM Minoru Terano and Liu Boping, *Japan Advanced Institute of Science and Technology, Japan*  
"Formation and Transformation of Active Sites on Traditional Ziegler and Phillips Catalysts" **11**

5:30 PM **POSTER SESSION AND RECEPTION**  
(Albemarle Sponsoring)

6:30 PM **DINNER ON YOUR OWN**



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**Tuesday, October 7, 2003**

7:30 AM **CONTINENTAL BREAKFAST**

INVITED LECTURE SESSION V

DISCUSSION LEADER: KEN WAGENER

8:15 AM Mike Chung, Penn State University **12**  
"A Direct (One-pot) Polymerization Process to Prepare  
Chain End Functionalized PP and Applications in PP/Acrylic Diblocks  
and PP/Clay Nano-composites "

8:45 AM E. Bryan Coughlin, University of Massachusetts **13**  
"Polyolefin Nanocomposites: Synthesis, Processing and Properties"

9:15 AM Pierre Lutz, University of Strasbourg, France **14**  
"Macromonomers and Coordination Polymerization "

10:00 AM **BREAK**

INVITED LECTURE SESSION VI

DISCUSSION LEADER: STEVE ITTEL

10:15 AM Richard F. Jordan, University of Chicago **15**  
"Studies Directed to Insertion Polymerization of Polar Vinyl Monomers"

10:50 AM Hans Thomann, Exxon Mobil Chemical Company **16**  
"Insights on Metallocene Catalysts From Magnetic Resonance Methods"

11:30 AM Saleem Al-Ahmad, Lubrizol **17**  
"Nickel Polymerization Catalysts Containing Mixed Bidentate Ligands"

12:15 PM **LUNCH**

INVITED LECTURE SESSION VII

DISCUSSION LEADER: JIM RANDALL

1:30 PM Ken Wagener, University of Florida **18**  
"Modeling Branching and Functionalization In Polyethylene"

2:00 PM Elizabeth Meehan, Polymer Labs Inc., United Kingdom **19**  
"Polyolefin Characterization by GPC and Associated Methods"

2:30 PM Wenbing Hu, FOM-Institute for Atomic and Molecular Physics, The Netherlands **20**  
"How the Sequence Distribution of Statistical Copolymers Affects Bulk Phase  
Transition Behaviors"

3:00 PM **BREAK**

INVITED LECTURE SESSION VIII

DISCUSSION LEADER: GARTH WILKES

3:15 PM Eric Baer, Case Western Reserve University **21**  
"Crystallization of Polyolefins Confined in Nanolayers - Forced Assembly

4:00 PM Bernhard Wunderlich, University of Tennessee and RPI **22**  
"The Nanophase Structure of Semicrystalline Polymers and Its Influence on the  
Thermal and Mechanical Properties"

4:45 PM Vince Mathot, Senior Scientist Crystallization & Morphology at DSM, The Netherlands **23**  
"Crystallization and Morphology of Ethylene (Co)Polymers as Influenced by  
Molecular Architecture: Experiments and Simulations"

5:30 PM **DINNER ON YOUR OWN**



## PROGRAM & SPEAKER TABLE OF CONTENTS, cont'd

	Abstract Number
<b>Wednesday, October 8, 2003</b>	
7:30 AM	<b>CONTINENTAL BREAKFAST</b>
INVITED LECTURE SESSION IX	
DISCUSSION LEADER: CLIVE BOSNYAK	
8:30 AM	<u>Anne Hiltner</u> , <i>Case Western Reserve University</i> , and <u>Steve Chu</u> , <i>Dow Chemical</i> <b>24</b> "Aspects of Phase Separation in Polyolefins"
9:00 AM	<u>Francis Mirabella</u> , <i>Equistar Chemicals, LP</i> <b>25</b> "Structure/Property Relationships in New Generation Polyolefins"
9:30 AM	David Godshall and <u>Garth Wilkes</u> , <i>Virginia Tech</i> and Rajendra K. Krishnaswamy and Ashish M. Sukhadia, <i>Chevron Phillips Chemical Company, LP</i> <b>26</b> "Structure-Property Investigation of Blown HDPE Films Containing Both Machine and Transverse Direction Oriented Lamellar Stacks"
10:00 AM	<b>BREAK</b>
INVITED LECTURE SESSION X	
DISCUSSION LEADER:FRAN MIRABELLA	
10:15 AM	<u>Pete Pierini</u> and <u>Clive Bosnyak</u> , <i>The Dow Chemical Company</i> <b>27</b> "Recent Advances in Polypropylene Material Science, Process and Product Development at Dow"
10:45 AM	<u>Pal Arjunan</u> , <i>Exxon Mobil Chemical Company</i> <b>28</b> "Novel Polypropylene Copolymers for Radiation Resistance"
11:15 AM	<u>Zhibin Guan</u> , <i>Univ. of California, Irvine</i> <b>29</b> "Chain Walking - A New Strategy to Control Polyolefin Branching Topology"
12:00 NOON	<b>LUNCH</b>
INVITED LECTURE SESSION XI	
DISCUSSION LEADER: PAL ARJUNAN	
1:15 PM	<u>Rick King</u> , <i>New Product Development, Ciba-Geigy</i> <b>30</b> "Additives for Polyolefins: Chemistry and Effects"
2:00 PM	<u>Donald G. Baird</u> , <i>Virginia Tech</i> <b>31</b> "Identifying Branching Architecture in Sparsely Branched Metallocene Catalyzed Polyolefins"
2:30 PM	<u>Jim Randall</u> , <i>ExxonMobil (retired)</i> <b>32</b> "Microstructural Distribution, Catalyst Behavior and Spherulitic Growth Rates in Matched Isotactic Metallocene and MgCl <sub>2</sub> -Supported Ziegler Natta Polypropylenes"
3:00 PM	<b>BREAK</b>
INVITED LECTURE SESSION XII	
DISCUSSION LEADER: JAMES E. MCGRATH	
3:20 PM	<u>Ioan Tincul</u> , <i>Sasol, South Africa</i> <b>33</b> "Multiple Polymerization with Fischer Tropsch Olefins- A New Challenge in Polyolefin Technology"
4:00 PM	Closing Remarks, James E. McGrath