CHEMICAL AND PHYSICAL PROCESSES
IN COMBUSTION

1980 TECHNICAL MEETING
The Eastern Section of The Combustion Institute
November 12-14, Princeton, New Jersey

Co-Hosted by:
Exxon Research and Engineering Company, Linden, New Jersey
and
Princeton University, Princeton, New Jersey
Eastern Section of The Combustion Institute
1980 Fall Technical Meeting
November 12, 13 and 14, 1980
Princeton University, Princeton, N. J.

Tuesday, November 11, 1980
7:30 p.m.-10:00 p.m. - Registration (Main Lobby, Nassau Inn)

Wednesday, November 12, 1980
7:30 a.m. - Registration (Engineering Quadrangle)
8:45 a.m. - Welcome and Introductory Remarks

Session A-1
Chairperson: Dr. W. Bartok
Exxon Research and Engineering Company

ENERGY CONVERSION

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>9:45 a.m.</td>
<td>Break</td>
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<td>9:50 a.m.</td>
<td>2. &quot;Wood Combustion in a Swirl Burner,&quot; K. Annamalai and D. B. Stickler, Avco Everett Research Laboratory, Inc.</td>
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<td>10:10 a.m.</td>
<td>3. &quot;Velocity Measurements in a Swirl-Stabilized Combustor,&quot; S. L. Lee and F. C. Gouldin, Cornell University.</td>
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<td>10:30 a.m.</td>
<td>Coffee Break</td>
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<td>11:00 a.m.</td>
<td>4. &quot;Preliminary Studies in the Pyrolysis of Biomass,&quot; W. R. Arthur, R. T. Gibbs and P. Durbetaki, Georgia Institute of Technology</td>
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<td>12:00 p.m.</td>
<td>7. &quot;Low-Low Btu Gas Combustion,&quot; P. F. Lewis, Physical Sciences, Inc.</td>
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<td>12:20 p.m.</td>
<td>Lunch Break</td>
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Session A-2
Chairperson: Dr. D. J. Seery
United Technologies Research Center

POLLUTION

2:00 p.m.  8. "Toxicology of Combustion Products," M. Birky, National Bureau of Standards. (Invited Paper)

2:45 p.m.  Break


3:30 p.m.  Coffee Break


5:30 p.m.  EXECUTIVE BOARD MEETING

Session B-1
Chairperson: Professor G. M. Faeth
The Pennsylvania State University

DROPLET AND SPRAY COMBUSTION


10:30 a.m.  Coffee Break

11:00 a.m.  41. "Effect of Fuel Droplet Composition on Ignition and Combustion Times," J. J. Sangiovanni, United Technologies Research Center


12:20 p.m.  Lunch Break

Session B-2
Chairperson: Professor M. Sibulkin
Brown University

COAL DUST COMBUSTION


3:10 p.m.  46. "Flame Propagation Experiments with Coal Dust in a Large-Scale Laboratory Gallery," S. E. Slezak, R. O. Buckius and H. Krier, University of Illinois.

3:30 p.m.  Coffee Break


Thursday, November 13, 1980

Session A-3
Chairperson: Dr. R. Levine
National Bureau of Standards

FIRE PHENOMENA
9:45 a.m. Break
9:50 a.m. 15. "Effects of Water on Wood-Charcoal Combustion," P. M. Bhagat, Columbia University
10:30 a.m. Coffee Break
11:00 a.m. 17. "A Dimensionless Correlation of the Flame Spread Rate Down Thermally Thick Fuels in the Presence of Free Convection," R. A. Altenkirch, A. R. Rizvi and R. Bichorn, University of Kentucky.
12:20 p.m. Lunch Break

Session A-4
Chairperson: Dr. F. Tamanini
Factory Mutual Research Corporation

FIRE MODELING
2:45 p.m. Break

3:50 p.m. Coffee Break

Session B-3
Chairperson: Dr. E. Oran
Naval Research Laboratory

IGNITION AND MODELING
10:30 a.m. Coffee Break
11:00 a.m. 51. "A Numerical Analysis of Flame Flashback in a Premixed System," S. Lee and J. S. Tien, Case Western Reserve University.
12:00 p.m.  54. "Transport Algorithms for Premixed, Laminar Steady State Flames," T. P. Coffee and J. M. Helmeri, Ballistic Research Laboratory.

12:20 p.m.  Lunch Break

Session B-4 Chairperson: Professor H. Krier University of Illinois

IGNITION AND MODELING (CONTINUED)


3:30 p.m.  57. "The Development of an Induction Parameter Model for Simulations of Detonations," E. S. Oran, J. P. Boris, M. J. Picone and T. R. Young, Naval Research Laboratory.

3:50 p.m.  Coffee Break

4:20 to 5:30 p.m. - OPEN FORUM

Friday, November 14, 1980

Session A-5 Chairperson: Mr. W. D. Howell Federal Aviation Administration Technical Center

FIRE PLUMES


10:10 a.m.  28. "An Adiabatic Turbulent Diffusive Open Flame Plume Model," T. B. C. Shen, Southeastern Massachusetts University

10:30 a.m.  Coffee Break


12:00 p.m.  Lunch Break

Session A-6 Chairperson: Professor B. T. Zinn Georgia Institute of Technology

SOOT


2:15 p.m.  33. "Break"


3:00 p.m.  Coffee Break


4:50 p.m.  Closing Remarks
Session B-5
Chairperson: Dr. D. J. Bogan
Naval Research Laboratory

CHEMICAL KINETICS


9:45 a.m. Break


10:30 a.m. Coffee Break


12:00 p.m. 64. "Russell Termination Reactions of Alkyl Peroxy Radicals, Analysis of Experiment and Theory," D. J. Bogan, Naval Research Laboratory

12:20 p.m. Lunch Break

Session B-6
Chairperson: Dr. H. G. Semerjian
National Bureau of Standards

2:20 p.m. 65. "CARS Concentration Sensitivity with and without Nonresonant Background Suppression," A. C. Eckbreth and R. J. Hall, United Technologies Research Center.


3:00 p.m. Coffee Break


4:10 p.m. 69. "Vibrational Energy Transfer in â± OH in Flames," D. R. Crosley and G. P. Smith, SRI International.