

ASPACC Agenda	May 24, 2009 (Sunday)	May 25, 2009 (Monday)	May 26, 2009 (Tuesday)	May 27, 2009 (Wednesday)				
08:30 09:00	Arrival	Registration	Plenary Lecture #3 [401] Prof. Brian S. Haynes University of Sydney Topic: Understanding How Carbon Oxidises (Chair: Prof. J. T. Yang)	Plenary Lecture #4 [401] Prof. Hideaki Kobayashi Tohoku University Topic: Recent Progress in High-pressure Combustion Research (Chair: Prof. S. S. Shy)				
09:00 09:50		Open Ceremony [201] Introduction: H. K. Ma , Organizer Greetings: - Dr. Tzong-Ho Bau , Vice President, National Taiwan University - Dr. Shu-Hung Shen , Minister of EPA - Dr. Charles K. Westbrook , President, The Combustion Institute -Guests		09:20 09:40	Coffee Break	Coffee Break		
09:50 10:10		Coffee Break	09:40 12:00	Invited Lecture Prof. H. Y. Kim [401]	Invited Lecture Prof. Y.C. Chao [401]			
10:10 11:40		Plenary Lecture #1 [201] Dr. Charles K. Westbrook Topic: Recent Advances in Detailed Chemical Kinetic Models for Large Hydrocarbon and Biodiesel Transportation Fuels (Chair: Prof. H. K. Ma)				Session 9: [402A] Session 10: [402B] Session 11: [402C] Session 12: [402D]	Session 13: [401]	Session 23: [402A] Session 24: [402B] Session 25: [402C] Session 26: [402D]
11:40 12:00		Plenary Lecture #2 [201] Prof. Chung K. Law Princeton University Topic: Strategies for Mechanism Reduction in CFD (Chair: Prof. Y. C. Chao)				Session 14:[402A] Session 15:[402B] Session 16:[402C] Session 17:[402D]	13:00 13:40	Invited Lecture Dr. V.K.Saraswat [401]
12:00 13:00		Report on Global Energy Research Prof. Chung K. Law Energy Frontier Research Centers & EFRC for Combustion Science in USA Prof. Suk-Ho Chung Clean Combustion Research Center, KAUST in Saudi Arabia						
13:00 15:00		Lunch	Lunch	Farewell Lunch				
15:00 15:20		Registration [101]	Session 1:[402A] Session 2:[402B] Session 3:[402C] Session 4:[402D] Session T-1:[401]	Coffee Break	Coffee Break			
15:20 18:00			Session 5:[402A] Session 6:[402B] Session 7:[402C] Session T-2:[402D] Session T-3:[403]			15:20 16:00	Invited Lecture Prof. L. X. Zhou [401]	Session 19: [402A] Session 20: [402B] Session 21: [402C] Session T-4: [402D] Session T-5: [403]
Evening		Welcome Reception* [101]	International Advisory Board Meeting [VIP Room, 2 nd Floor] ASPACC2009 Party	ASPACC 09 Conference Banquet* 2 nd Floor [201]				

Note: []: Room Number

Session T: Annual Conference of Chinese Taipei Section

Welcome Address

Open Ceremony



Dr. Stephen Shu-hung Shen
Minister, Environmental Protection Administration (EPA), Executive Yuan

1998-2003 & 2006-2008 Commissioner, Dept. of Environmental Protection, Taipei City Government

Open Ceremony



Dr. Tzong-Ho Bau
Vice President for Administrative Affairs, National Taiwan University
Professor, Department of Political Science, National Taiwan University

1995-2000 Research Member, National Unification Council, The Presidential Hall

1995-2000 Consultant, Government Information Office, The Executive Yuan

2000-2005 Dean, College of Social Sciences, National Taiwan University

Conference Banquet



Dr. Eugene Chien
Chairman, Taiwan Institute for Sustainable Energy

2002-2004 Minister of Foreign Affairs

2000-2002 Deputy Secretary General to the National President

1991-1993 Minister of Transportation and Communications

1987-1991 Administrator (Minister) of the Environmental Protection Administration

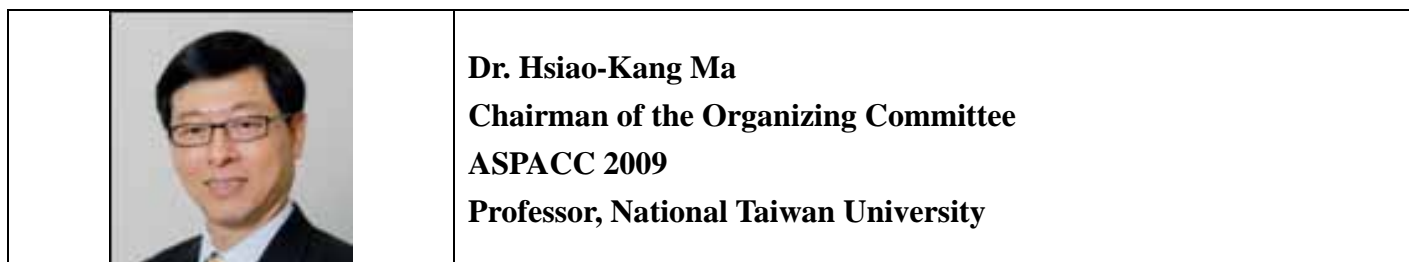
1978-1984 Professor and Dean, College of Engineering, Tamkang University

Conference Banquet



Dr. Huan-Jang Keh
Dean, College of Engineering, National Taiwan University

Welcome Remarks



On behalf of the Organizing Committee, I would like to extend our warmest welcome to all of you for attending the 7th Asia-Pacific Conference on Combustion (ASPACC2009) in Taipei. ASPACC2009 is organized by the Asia-Pacific regional section members, affiliated with the Combustion Institute. It was organized in 1996 to promote the regional exchange of information and to elevate state-of-the-art research in combustion science and technology through regional and global scientific partnerships. Following the first successful conference held in Osaka, Japan in 1997, the subsequent conferences held in Taiwan, Korea, China, Australia, and Japan further expanded the remarkable progress in fundamental combustion research and its applications, and established a tradition of interaction. The Indian Section of the Combustion Institute joined the leadership group at ASPACC07.

In 2009, from May 24-27, ASPACC2009 brings together scientists and engineers to provide a congenial occasion to observe and acknowledge the extent of the accomplishments and challenges of modern combustion science and technology, as well as to examine their continuing role and impact on global climate change and the energy crisis in the coming age.

I would like to express my sincere thanks to the members of the Organizing Committee for their support in the planning and organization of this conference. Also, a huge thanks to the session chairs, reviewers, and all of those who have ensured the integrity and quality of the papers for presentation at this conference. Finally, I recognize and honor the contributions of all the authors, plenary and invited speakers who have helped to make ASPACC2009 a great success.

Hope you enjoy the ASPACC2009 Conference and the days your spend in Taipei!

Hsiao-Kang Ma
Chairman of the Organizing Committee

Plenary Lectures

Lecture #1: 10:10-10:55 am on May 25, 2009 (Monday)



Recent Advances in Detailed Chemical Kinetic Models for Large Hydrocarbon and Biodiesel Transportation Fuels

Dr. Charles K. Westbrook
President, The Combustion Institute, USA

Charles K. Westbrook received a B.S. in physics from Harvey Mudd College and a Ph.D. in applied science and engineering from the University of California at Davis. He joined the Lawrence Livermore laboratories in 1968 in the Physics Directorate, where he subsequently became division leader of the Chemistry and Chemical Engineering Division in the Chemistry and Materials Science Directorate. His honors include the 1991 Horning Memorial Award from the Society of Automotive Engineers for the best paper of the year on engine-fuel relationships and the 1992 Thomas Midgley Award from the American Chemical Society for outstanding contributions in the field of chemistry related to the automotive industry. Westbrook has authored approximately 250 refereed publications on combustion, chemical kinetics, and physics.

Lecture #2: 10:55-11:40 am on May 25, 2009 (Monday)



Strategies for Mechanism Reduction in CFD

Prof. Chung K. Law
Princeton University, USA

Chung K. Law received a B.S. in Physics from the University of Alberta in 1968, an M.A.Sc. in Aerospace Studies from the University of Toronto in 1970, and a Ph.D. in Engineering Physics from the University of California at San Diego in 1973. He was on the faculties of Northwestern University from 1976 to 1984 and the University of California at Davis from 1984 to 1988. In 1988 he joined Princeton University, where he has been the Robert H. Goddard Professor of Mechanical and Aerospace Engineering since 1995. Law's research interests are in combustion, propulsion, heat and mass transfer, energy, alternate fuels, and the environment. He has published over 350 journal-class articles in these areas. For his research accomplishments he has been honored with the Curtis W. McGraw Research Award of the American Society for Engineering Education (ASEE) in 1984, a Silver Medal and the Egerton Gold Medal of the Combustion Institute in 1990 and 2006 respectively, the Propellants and Combustion Award, the Energy Systems Award, and the Pendray Aerospace Literature Award of the American Institute of Aeronautics and Astronautics (AIAA) in 1994, 1999, and 2004 respectively, the Heat Transfer Memorial Award, in Science, of the American Society of Mechanical Engineers (ASME) in 1997, an Outstanding Alumnus Award from the University of California at San Diego in 2000 and from the Hong Kong Polytechnic University in 2007, and several best conference paper awards. He was among the one hundred most highly cited authors in engineering worldwide in the inaugural year when the Institute for Scientific Information (ISI) started the compilation. He is a fellow of the AIAA, ASME, and the American Physical Society (APS), a member of the U.S. National Academy of Engineering (NAE), and a past president (2000-2004) of the Combustion Institute.

Lecture #3: 8:30-9:20 am on May 26, 2009 (Tuesday)



Understanding how Carbons Oxidise

Prof. Brian S. Haynes
University of Sydney, Australia

Brian Haynes graduated in chemical engineering (BE, 1973, and PhD, 1976) from the University of NSW in Sydney, Australia. He held research appointments at the University of Göttingen in Germany, at MIT, and at CSIRO in Australia before joining the University of Sydney in 1983. His research interests in energy utilization cover a broad range of activities from combustion and gasification to heat transfer and process efficiency.

Brian is a Fellow of the Institution of Chemical Engineers, Australia, and of the Australian Academy of Technological Sciences and Engineering. He is the immediate past-President of the Combustion Institute (2004-2008).

Lecture #4: 8:30-9:20 am on May 26, 2009 (Tuesday)



Recent Progress in High-pressure Combustion Research

Prof. Hideaki Kobayashi
Tohoku University, Japan

Hideaki Kobayashi received a B.S., an M.S., and a Ph.D. in Mechanical Engineering from Tohoku University. He once joined Nissan Motor Co., Ltd. and then moved to the Department of Mechanical Engineering, Tohoku University in 1984. He was promoted to Professor at the Institute of Fluid Science, Tohoku University in 2003. He has served as a board member of directors in Combustion Society of Japan since 2000 and became a board member of the Combustion Institute in 2008. He has also served as a program co-chair of the 32nd International Combustion Symposium in Montreal, 2008. He has worked on the fundamentals of combustion, especially on turbulent combustion, high-pressure combustion, high-temperature air combustion, supersonic combustion, and microgravity combustion. His honors include best paper awards from Japan Society for Aeronautical and Space Sciences in 1998 and Japan Society of Mechanical Engineers in 2006.

Special Session: Recent Developments in Global Infrastructure on Energy & Combustion Research

11:40-12:00 am on May 25, 2009 (Monday)



Topic: Establishment of 46 Energy Frontier Research Centers in USA

Prof. Chung K. Law
Princeton University, USA
and
Director-designate, Energy Frontier Research Center for Combustion Science



Topic: Establishment of Clean Combustion Research Center at KAUST

Prof. Suk Ho Chung
Seoul National University, Korea
and
Director-designate, Clean Combustion Research Center, KAUST

Invited Speakers

	<p>Personal Power Systems: Microjet Flames and Thermophotovoltaic Systems</p> <p>Prof. Y.C. Chao National Cheng Kung University, Chinese Taipei</p>
	<p>The Combustion of Interacting Droplets and Particles Array in Convective Environment</p> <p>Prof. H. Y. Kim Korea University, Korea</p>
	<p>Recent Developments and Applications of Tunable Synchrotron VUV Photoionization Mass Spectrometry in Combustion Studies</p> <p>Prof. F. Qi University of Science and Technology of China, China</p>
	<p>Research and Development on Supersonic Combustion Ramjet</p> <p>Mr. P.K. Pandey Secretary-Indian Section of the Combustion Institute & Vice President (Infotech Enterprises Ltd, Hyderabad)</p>
	<p>Advances in Developing Second-Order Moment Multiphase and Reacting Turbulence Models</p> <p>Prof. L. X. Zhou Tsinghua University, China</p>

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Chao, Y.C. (Chinese Taipei, Taiwan)	Niioka, T. (Japan)
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Chung, S.H. (Korea)	Sato, J. (Japan)
Haynes, B. S. (Australia)	Xu, X.C. (China)
Kono, M. (Japan)	

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Lin, C.Y., National Taiwan Ocean University	*Liou, T.M., National Tsing Hua University
Lin, T.H., National Cheng Kung University	*Su, Y.P., Chung-Shan Institute of Sci. and Tech.

*: Advisor, Former President of Chinese Taipei Section

<i>Local Organizing Committee</i>	
Chairman - Pan, K.L., National Taiwan University	Shy, Y.J., National Taipei University of Technology
Co-chairman - Wu, Y.P., National I-lan University	Wang, H.H., National Taiwan University
Huang, J.S., Tech. and Sci. Institute of Northern Taiwan	

Session Program

Session 1-8 May 25, 2009 (Monday)

- Session 1: Chemical Kinetics
- Session 2: Fire
- Session 3: Engine Combustion
- Session 4: Spray Combustion
- Session 5: Chemical Kinetics & Material
- Session 6: Micro Combustion & incineration
- Session 7: Engine Combustion
- Session 8: Soot & PAH and Spray Combustion

Session 9-22, May 26, 2009 (Tuesday)

- Session 9: Laminar Flames
- Session 10: Turbulent Combustion
- Session 11: Engine Combustion
- Session 12: Combustion Modeling
- Session 13: Combustion Diagnostics
- Session 14: Laminar Flames
- Session 15: Turbulent Combustion
- Session 16: Engine Combustion
- Session 17: Combustion Modeling
- Session 18: PDE and Supersonic Combustion
- Session 19: Laminar Flames
- Session 20: Turbulent Combustion and Laminar Combustion
- Session 21: Engine Combustion
- Session 22: New Concepts of Combustion Technologies

Session 23-27 May 25, 2009 (Monday)

- Session 23: Laminar Flames
- Session 24: PDE and Supersonic combustion
- Session 25: Coal Combustion
- Session 26: Coal Combustion
- Session 27: New Concepts of Energy Technologies

May 24, 2009
Registration Day (Sunday, Room 101)

15:00-18:00

Registration

18:00-21:00

Welcome Reception

May 25, 2009
Day 1 (Monday)

08:00-12:00

Registration: Room 201

13:00-17:00

Registration: Room 4th Floor

Room 201

09:00-10:00

OPEN CEREMONY

Introduction: H.K. Ma, Organizer, ASPACC2009

Greetings: - Dr. Tzong-Ho Bau, Vice President, National Taiwan University
- Dr. Stephen Shu-Hung Shen, Minister of EPA
- Dr. Charles K. Westbrook, President, The Combustion Institute
- Guests

10:00-10:20

Coffee Break

10:20-11:10

Plenary Lecture#1: **Chair: Prof. H.K. Ma**

Recent Advances in Detailed Chemical Kinetic Models for Large Hydrocarbon and Biodiesel
Transportation Fuels

Dr. Charles K. Westbrook

11:10-12:00

Plenary Lecture #2: **Chair: Prof. Y.C. Chao**

Strategies for Mechanism Reduction in CFD

Prof. Chung K. Law

12:00-13:00

Lunch

Room 401

13:00-15:00

Session T-1: May 25, 2009(Monday)

Chinese Taipei Section Annual Conference

15:00-15:20

Coffee Break

15:20-16:00

Invited Lecture: May 25, 2009(Monday)

Advances in Developing Second-Order Moment Multiphase and Reacting Turbulence Models

Prof. L. X. Zhou, Tsinghua University, China

Chair: Prof. H.H. Wang, National Taiwan University

16:00-18:00

Session 8: May 25, 2009(Monday)

Soot & PAH and Spray Combustion

Session-Chair: **P.K. Bose, K.L. Pan**

16:00-16:15 10014:

An improved Theoretical Modeling of Cut Size Diameter of Cyclone Separator as a Diesel Soot Particulate Emission Arrester with a Continuous Ceramic Packed Fiber Filter Placed at the End of the Vortex Finder Tube

N.Mukhopadhyay¹, P.K.Bose²

¹Department of Mechanical Engineering, Jalpaiguri Government Engg. College, Jalpaiguri – 735102,

²Department of Mechanical Engineering, Jadavpur University, Kolkata – 700 032

16:15-16:30 10070:

Electro Cyclone as a Diesel Exhaust Soot Particulate Emission Arrester

S. Mitra¹, N. Mukhopadhyay², P. K. Bose³

^{1,2}Department of Mechanical Engineering, Jalpaiguri Government Engg. College, Jalpaiguri – 735102, West Bengal, India.

³Director, National Institute of Technology (NIT), Agartala, Tripura, India

16:30-16:45 10187:

Computational Prediction of Soot Particle Size Distribution in a Diesel Engine

Jaeseo Lee¹, Insuk Han¹, Kang Y. Huh¹

¹Department of Mechanical Engineering Pohang University of Science and Technology, Hyoja-dong, Pohang, Kyungbuk, 790-784, Republic of Korea

16:45-17:00 10201:

The Characteristics of Soot Particles from Diesel Fuel Pyrolysis for Simulating Diesel Engine Particle Matter

Younwoo Nam¹, Kwangchul Oh^{*1}, Chunhwan Lee¹, Chunbeom Lee¹

¹Environmental System R&D Center of Korea Automotive Technology Institute, 74 Yongjung-Ri, Pungse-Myun, Chonan Chungnam, 330-912, KOREA

17:00-17:15 10066:

Binary Fuel of Diesels-Alkane Droplet Combustion in Microgravity

Kuo-Long Pan, Je-Wei Li, Chien-Pei Chen, and Ching-Hua Wang

Department of Mechanical Engineering, National Taiwan University, Taipei 106, Taiwan, R. O. C

17:15-17:30 10200:

Behavior of Flame Spreading along a Droplet Array of Oil-in-Water Emulsion

D. Segawa¹, S. Nakaya¹, T. Kadota¹, H. Tanaka¹, H. Fujii¹ and H. Yamasaki²

¹Department of Mechanical Engineering, Osaka Prefecture University, 1-1 Gakuen-cho, Naka-ku, Sakai, Osaka 599-8531, JAPAN

²College of Industrial Technology, Nihon University, 1-2-1 Izumi-cho, Narashino, Chiba 275-8575, JAPAN

17:30-17:45 10208:

Numerical Analysis of an Interacting Droplet in a Combusting Cluster

J.S. Huang^{1*} and H.H. Chiu²

¹Department of Mechanical Engineering, Technology and Science Institute of Northern Taiwan, Taipei, Taiwan, 112, R.O.C.

²Institute of Aeronautics and Astronautics, National Cheng Kung University, Tainan, Taiwan, 701, R.O.C.

17:45-18:00 10153:

Impingement of a Gas-in-Liquid Compound drop on a Heated Flat Plate

Ku- Nieng Chang¹, Rong-Horng Chen², Jen-Yung Pu¹, and Ta-Hui Lin¹

¹Department of Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan

²Department of Mechanical Engineering, Southern Taiwan University of Technology, Tainan, Taiwan

Room 402A

13:00-15:00

Session 1 : May 25, 2009 (Monday)

Chemical Kinetics

Session-Chairs: **B. S. Haynes, Yiguang Ju**

13:00-13:15 10030:

Kinetic Modelling of Low Temperature H₂S Combustion

R. C. Zhou, K. Sendt, B. S. Haynes

School of Chemical and Biomolecular Engineering, University of Sydney, NSW, Australia

13:15-13:30 10118:

The Effect of Low Concentrations of Nitric Oxide and Ethane on the Oxidation of Methane

Y. L. Chan¹*, A. A. Konnov², J. H. Bromly³, D.K. Zhang¹

¹ *Centre for Petroleum, Fuels and Energy, The University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia*

² *Department of Mechanical Engineering, Vrije Universiteit Brussel, 1050 Brussels, Belgium*

³ *Centre for Advanced Energy Science and Engineering, Curtin University of Technology, Perth, WA 6102, Australia*

13:30-13:45 10150:

Investigation of Chemical Kinetics in Chemical-Induced Oscillations with Diluted Lean CH₄/Air Mixture at Low Temperatures

T. Wada and N. Peters

Institute fuer Technische Verbrennung RWTH-Aachen University, Aachen 52056, GERMANY

13:45-14:00 10101:

Generation of A Reduced Kinetic Mechanism of Ethanol and Application to 1-D and 2-D Numerical Simulations

M.Okuyama¹, S. Hirano¹, Y. Ogami¹, H. Nakamura¹, M. Kawase², Y. Ju³ and H. Kobayashi¹

¹ *Institute of Fluid Science, Tohoku University 2-1-1 Katahira, Aoba-ku, Sendai, 980-8577, JAPAN* ² *Nippon Oil Corporation 3-12, Nishi Shimbashi 1-chome, Minato-ku, Tokyo 105-8412, JAPAN*

³ *Department of Mechanical and Aerospace Engineering, Princeton University, D115 E-Quad, Olden Street, Princeton, NJ 08544, UNITED STATES*

14:00-14:15 10123:

Carbon Dioxide Formation from a Short-Chain Biodiesel Ester: a Kinetic Study

Kuang C. Lin and Angela Violi*

Department of Mechanical Engineering, University of Michigan, Ann Arbor, Michigan, 48109-2125, USA

14:15-14:30 10061:

Kinetic Mechanism Reduction by Using a Genetic Algorithm

Xiaolong Gou^{1,3,*}, Zheng Chen², Wenting Sun³ and Yiguang Ju³

¹ *School of Power Engineering, Chongqing University, People's Republic of China*

² *Department of Mechanical and Aerospace Engineering, Peking University, People's Republic of China*

³ *Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ08544, USA*

14:30-14:45 10169:

Chemical Kinetics on NO Production of Coal Syngas Combustion in the Oxy-fuel Conditions

K-R. Lee¹, S-M. GO¹, S-I. Seo², T-H. Kim², G-M. Choi³, and D-J Kim⁴

¹ *Graduated school of Mechanical Engineering, Pusan National University, Jangjeon-dong, Geumjeoung-Ku, Busan, 609-735, Korea*

² *Korea Electric Power Research Institute, 103-16 Munji-Dong, Yuseong-Gu, Daejeon, 305-380, Korea*

³ *Pusan Clean Coal Center, Pusan National University, Jangjeon-dong, Geumjeoung-Ku, Busan, 609-735, Korea*

⁴ *School of Mechanical Engineering Pusan National University, Jangjeon-dong, Geumjeoung-Ku, Busan, Korea*

14:45-15:00 10073:

Effects of Flow Field on the Performance of Piezoelectric Proton Exchange Membrane Fuel Cells (PZT-PEMFCs)

Hasio-Kang Ma*, Shih-Han Huang, Jyun-Sheng Wang, Yu-Jen Huang, and Yao-Zong Kuo

Department of Mechanical Engineering, National Taiwan University, Taipei 10617, Taiwan

15:00-15:20

Coffee Break

15:20-17:30

Session 5 : May 25, 2009 (Monday)

Chemical Kinetics & Material

Session-Chairs: C. L. Yeh, T. Ueda

15:20-15:35 10108:

Combustion Synthesis of Ti_3AlC_2 from TiC- and Al_4C_3 -containing Samples

C.L. Yeh, Y.G. Shen

Department of Aerospace and Systems Engineering, Feng Chia University, Taichung 40724, Taiwan

15:35-15:50 10052:

Carbon Dioxide Sequestration by Mineral Carbonation in Simulated Flue Gas

Junying Zhang * , Yongchun Zhao, Heng Yan, Bin Yao, Chuguang Zheng

State Key Laboratory of Coal Combustion, Huazhong University of Science & Technology, 430074 China

15:50-16:05 10093:

Effects of Particle Size of Powder and Initial Temperature in the SHS Process for MgB_2

M. Shintomi¹, R. Kaneko¹ and A. Makino²

¹*Department of Mechanical Engineering, Numazu National College of Technology, JAPAN*

²*Aerospace Research and Development Directorate, Japan Aerospace Exploration Agency, JAPAN*

16:05-16:20 10142:

The Study of Ultrasound Assisted Oxidative Desulfurization Process applied to Recovered Oil from Wasted Tires

T.C. Chen¹, M.W. Wan^{2*}, Y.H. Shen¹, C.C. Lin³

¹*Department of Resources Engineering, National Cheng Kung University, No.1, Ta-Hsueh Road, 701 Tainan, Taiwan*

²*Department of Environmental Engineering & Science, Chia-Nan University of Pharmacy & Science, 60, Erh-Jen RD., Sec.1, Jen-Te, Tainan, Taiwan*

³*Department of Environmental Science and Engineering, National Pingtung University of Science and Technology, Nei Pu, PingTung 91201, Taiwan*

16:20-16:35 10184:

Flame Synthesis of Y_2O_3 :Yb,Er Nanophosphors with Vapor Precursors

T. Yokomori, J. Tajima, Y. Iwako, M. Mizomoto and T. Ueda

Department of Mechanical Engineering, Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama 223-8522, Japan

16:35-16:50 10041:

4-Amino Triazolylpentazole: A Prospective Study

Pravat K. Swain, and Haridwar Singh*

University of Hyderabad, P.O.-Central University, Hyderabad-500046, India

16:50-17:05 10170:

Combustion Synthesis of TiO_2 Nanoparticles in the Premixed Methane Flame

H. A. Yang, H. K. Ma

Department of Mechanical Engineering, National Taiwan University, Taipei, Taiwan 106

17:05-17:20 10022:

Investigation of Carbonization Process of Chemical Impregnated Biomass for the Production of Activated Carbon

T.Kaghazchi*, N.Asasian

Department of Chemical Engineering, AmirKabir University of Technology, No.424, Hafez Ave., Tehran, Iran

17:20-17:35 10016:

Single Step Synthesis Of Dimethyl Ether As A Clean Fuel For Some Internal Combustion Engines

Morteza Sohrabi & Ali Hadipour

Department of Chemical Engineering, Amirkabir University of Technology, Tehran 15914, Iran

Room 402B

13:00-15:00

Session 2 : May 25, 2009 (Monday)

Fire

Session-Chairs: **Wei-Hsiang Lai, O. Fujita**

13:00-13:15 10134:

Structural Fire Resistances of Reinforced Concrete Interior/Edge/Corner Columns

Tsung-Jung Hsu¹, Wei-Hsiang Lai¹ and T. D. Lin²

¹Department of Aeronautics and Astronautics, National Cheng Kung University, Tainan, 70101, Taiwan

²Research and Services Headquarters, National Cheng Kung University, Tainan, 70101, Taiwan

13:15-13:30 10083:

Numerical Simulation of Pool Fire in a Forced Ventilated Enclosure

Seik Mansoor Ali¹, H. Seshadri¹, S.E. Kannan¹ and V. Raghavan²

¹Safety Research Institute, Atomic Energy Regulatory Board, Kalpakkam – 603 102, India

²Department of Mechanical Engineering, IIT Madras, Chennai 600036

13:30-13:45 10145:

Experimental Study of Liquid Sodium Pool Fire in a table-Top Set-Up

Subramani A¹, Jayanti S^{1,*}, U.S.P Shet²

¹Department of Chemical Engineering, Indian Institute of Technology Madras, Chennai 600036, India

²Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai 600036, India

13:45-14:00 10166:

Time-dependent Flame Spread Behaviour of Electric Wire in Sub-atmospheric Pressure

Y. Nakamura, K. Azumaya, H. Ito and O. Fujita

Division of Mechanical and Space Engineering, Hokkaido University, N 13 W 8, Kita-ku, Sapporo, 060-8628, JAPAN

14:00-14:15 10207:

Ignition Phenomena of Electric Wire with Short-Term Excess Electric Current in Microgravity

O. Fujita, T. Kyono, Y. Kido, H.Ito, Y. Nakamura

Division of Mechanical and Space Engineering, Hokkaido University, Sapporo, 060-8628, Japan

14:15-14:30 10178:

Influence of Ceiling Height and Fire Load on Ceiling Jet Temperature

Hung-Hsiang Chen and Kuang-Chung Tsai

Department of Safety, Health and Environmental Engineering, National Kaohsiung First University of Science and Technology, TAIWAN

14:30-14:45 10173:

Critical Ventilation Velocity for Multi-Source Tunnel Fires

Hung-Hsiang Chen, Tsun-Tse Huang and Kuang-Chung Tsai

Department of Safety, Health and Environmental Engineering, National Kaohsiung First University of Science and Technology, TAIWAN

14:45-15:00 10050:

Study of Water Mist System for Fire Suppression

D. P. Mishra¹ and R. Singh¹

¹Combustion Lab, Department of Aerospace Engineering, Indian Institute of Technology, Kanpur-208 016, INDIA

15:00-15:20

Coffee Break

15:20-17:30

Session 6 : May 25, 2009 (Monday)

Micro Combustion & Incineration

Session-Chairs: **K. Maruta, Sejin Kwon**

15:20-15:35 10094:

Formation of Multiple Flame Fronts in Heated Micro Channel

E. Sereshchenko¹, S. Minaev¹, R. Fursenko¹, A. Fan², K. Maruta²
¹*Khrstianovich Institute of Theoretical and Applied Mechanics, Russian Academy of Sciences
Novosibirsk, 630090, RUSSIA*
²*Institute of Fluid Science, Tohoku University, Katahira, Aoba, Sendai, 980-8577, JAPAN*

15:35-15:50 10082:

**5W Microcombustor with a Sintered Catalytic Layer and Application to
Micro-cogenerator**

Shuhei Takahashi¹, Naohiko Yamada¹ and Kazunori Wakai¹

¹*Department of Mechanical and Systems Engineering Gifu University, Yanagido1-1, Gifu, 501-1193, JAPAN*

15:50-16:05 10076:

Flame dynamics in Microchannel of Variable Area

S. Minaev¹ and R. Fursenko¹

¹*Khrstianovich Institute of Theoretical and Applied Mechanics SB RAS, Institutskaya 4/1, Novosibirsk, 630090,
RUSSIA*

16:05-16:20 10048:

**Numerical Simulation of CH₄/Air Pre-Mixed Combustion in a Micro-Tube Burner
Under Preheating Condition**

S. Tabejamaat¹, M.R. Baig Mohammadi¹ and J.Zarvandi¹

¹*Department of Aerospace Engineering Amirkabir University of Technology, IRAN*

16:20-16:35 10225:

Extinguishing of fires using the aerosol of aqueous solutions of salts

O. P. Korobeinichev, A. G. Shmakov, A. A. Chernov, V. M. Shvartsberg, K. P. Koutsenogii,
V. I. Makarov

Institute of Chemical Kinetics and Combustion SB RAS

16:35-16:50 10098:

Enhancing Thermal and Electrical Efficiency of a Miniature TPV System

Yueh-Heng Li¹, Hong-Yuan Li¹, Derek Dunn-Rankin^{2*}, Yei-Chin Chao¹

¹*Institute of Aeronautics and Astronautics, National Cheng Kung University, Tainan, 701, Taiwan, R.O.C.*

²*Department of Mechanical and Aerospace Engineering, University of California, Irvine, California, USA.*

16:50-17:05 10179:

Hydrogen Catalytic Combustion on Pt/Al₂O₃ Coated Nickel Foam

Jungkun Jin and Sejin Kwon

Division of Aerospace Engineering, KAIST, 335 Gwahangno, Daejeon 305-701, Republic of Korea

17:05-17:20 10163:

Effects of Air Groove on Combustion Characteristics of a Micro Swiss-Roll Combustor

Junwei Li^{1&}, Beijing Zhong², Zhijun Wei¹ and Ningfei Wang¹

¹*School of Aerospace Science and Engineering, Beijing Institute of Technology, Beijing100081, CHINA*

²*School of Aerospace, Tsinghua University, Beijing 100084, CHINA*

17:20-17:35 10049:

Characteristics of Premixed Flame in an Annular Micro-combustor

S. Y. Jejurkar¹ and D. P. Mishra¹

¹*Combustion Laboratory, Department of Aerospace Engineering, Indian Institute of Technology, Kanpur 208016,
INDIA*

Room 402C

13:00-15:00

Session 3 : May 25, 2009 (Monday)

Engine Combustion

Session-Chair: D.P.Mishra, T.Kuwahara

13:00-13:15 10062:

**NO_x and Particulate Emissions of a Diesel Engine Operating on Biodiesel and Biodiesel
Blended with Ethanol and Methanol**

Lei Zhu^{1,2}, C.S. Cheung¹ and Zhen Huang²

¹*Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hong Kong SAR, China*

²*School of Mechanical Engineering, Shanghai Jiaotong University, Shanghai, P.R. China*

13:15-13:30 10097:

Pollution Control in Multi-Cylinder S.I. Engine by Metal Oxide Pellets

K. Parthiban¹ and K.Jeyachandran²

¹Senior Lecturer, Department of Mechanical Engineering, Thanthai Periyar Government Institute of Technology, Vellore, Tamil Nadu, INDIA

²Principal, Vel Tech Engineering College, Director (Research) (Retd.), Anna University, Chennai, Tamil Nadu, INDIA

13:30-13:45 10119:

Classification of Spontaneous Ignition and Combustion Behavior of Premixture Using a Super Rapid Compression Machine

M.Mitani¹, M. Katsumata¹, Y. Watanabe¹, K. Morikawa², T. Kuwahara¹ and M. Tababe¹

¹College of Science and Technology, Nihon University, 7-24-1, Narashinodai, Funabashi, Chiba, 274-8501, JAPAN

²SUBARU Engineering Division PGM, Fuji Heavy Industries Ltd., JAPAN

13:45-14:00 10072:

Effect of Varying 9-Octadecenoic Acid Content in Ester on the Performance of CI Engine

Sudesh Bekal*, Dinesh P.

Department of Mechanical Engineering, NMAM Institute of Technology, Nitte 574 110, Karnataka, India

14:00-14:15 10210:

Combustion Analysis of Hydrogen Fueled S.I. Engine through Experimental Investigation

G.Sakthinathan¹, A.Subramani², R.Deepak¹, Dr. K. Jeyachandran²

¹Department of Manufacturing Engineering, College of Engineering, Guindy, Anna University, Chennai 600 025, Tamil Nadu, India,

²Internal Combustion Engineering Division, Department of Mechanical Engineering, College of Engineering, Guindy, Anna University, Chennai 600 025, Tamil Nadu, India.

14:15-14:30 10088:

Effects of Water-Gasoline Emulsions on Performance and Emission of Lean-Burn Spark-Ignition Engine

Y.Y. Wu, K.D. Huang and Q.A. Nguyen

Department of Vehicle Engineering, National Taipei University of Technology, Taipei, 10608, TAIWAN

14:30-14:45 10045:

Numerical Studies of a 2D Trapped Vortex Combustor

R. Sudharshan, P. K. Ezhil Kumar and D. P. Mishra

Combustion Lab, Department of Aerospace Engineering, Indian Institute of Technology, Kanpur-208016, India

14:45-15:00 10044:

Effect of Bio-diesel(B20) on Performance and Emissions of Optimum Injector Opening Pressure Operating at Different Injection Timings of Semi-adiabatic Engine

Dhananjaya D A¹, Mohanan P², Sudhir C V³

¹Research Scholar, Department of Mechanical Engineering, National Institute of Technology Karnataka, Mangalore, Karnataka State, India

²Professor, Department of Mechanical Engineering, National Institute of Technology Karnataka, Mangalore, Karnataka State, India

³Faculty, Department of Mechanical Engineering, Manipal Institute of Technology, Manipal, Karnataka State, India

15:00-15:20

Coffee Break

15:20-17:35

Session 7 : May 25, 2009 (Monday)

Engine Combustion

Session-Chair: **Dongke Zhang, Q. Yao**

15:20-15:35 10091:

Homogeneous Combustion Catalysts for Efficiency Improvements and Emission

Reduction in Diesel Engines

Dongke Zhang

Centre for Petroleum, Fuels and Energy, The University of Western Australia, 35 Stirling Highway, Crawley, WA 6008, Australia

15:35-15:50 10053:

Emission Reduction and Combining an Oxygenate Fuels with Diesel in a DI Diesel Engine

A.P.Sathiyagnanam, C.G.Saravanan and C.Anandasrinivasan

Department of Mechanical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamainagar 608002, Tamilnadu, india

15:50-16:05 10054:

A Study on the Combustion and Emission Characteristics on SI Engine with Oxygenated Fuel Additives – Ethanol Gasoline Blends

C.Ananda Srinivasan and C.G. Saravanan

Department of Mechanical Engineering, Annamalai University, Annamalainagar - 608 002, Tamilnadu, India

16:05-16:20 10135:

Numerical Analysis of the Ignition and Exhaust Characteristics on HCCI Combustion with Detailed Chemical Kinetics

K. Yamada¹, K. Yoshida¹, K. Oshima¹, T. Takeda¹ and I. Kataoka¹

¹Department of Mechanical Engineering, Osaka University, 2-1 Yamada-Oka, Suita, Osaka, 565-0871, JAPAN

16:20-16:35 10202:

A Preliminary Study for Applying the Atkinson Cycle on the 2-Stage Injection Type PCCI Engine

Hyungmin Kim¹⁾, Junil Lee¹⁾, Jahyeon Lee¹⁾, Kibum Kim²⁾, Kihyung Lee^{*2)}

¹⁾Graduate School, Hanyang University, 1271 Sa 3-dong, Sangrok-gu, Gyeonggi-do, 426-791, Korea

*^{*2)} Department of mechanical Engineering, Hanyang University, 1271 Sa3-dong, Sangrok-gu, Gyeonggi-do, 426-791, Korea*

16:35-16:50 10071:

Analyses of Temperature and Pressure Condition in CI Engine'S Exhaust Pipe in Light of Application NOx Sensor to Determine of Catalytic Converter Efficiency

Marcin Rychter

Motor Transport Institute, Diagnostics and Servicing Process Department, 80 Jagiellońska St., 03-301 Warsaw, Poland

16:50-17:05 10217:

Ultra-low Exhaust Emissions of Turbocharged Inter-cooled Diesel Engine with DMCC

YAO Chun-de , XU Yuan-li , Yang Jian-jun , CHEN Xu-ping , Zhang Zhi-hui , HUANG Yu

State Key Laboratory of Engine, Tianjin University, Tianjin, 300072 , China

17:20-17:35 10078:

Influence of Alcohols as Oxygenated Fuel Additives on the Performance and Emission Studies of a Direct Injection Diesel Engine

Suresh Shetty¹, Shrinivasa Rao B.R.¹ and Samaga B.S.¹

¹Department of Mechanical Engineering, N.M.A.M. Institute of Technology, Nitte, Karnataka, India- 574 110

Room 402D

13:00-15:00

Session 4: May 25, 2009 (Monday)

Spray Combustion

Session-Chairs: **Michikata Kono , T.H. Lin**

13:00-13:15 10138:

Discussion on Distribution of Electric Field around Burning Fuel Droplets form Experiments of Different Electrode Distance

Bo Chen, Osamu Imamura, Mitsuhiro Tsue, and Michikata Kono

Department of Aeronautics and Astronautics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-8656, Japan

13:15-13:30 10168:

Estimation of Surface Charge Density under Time-dependent External Field with New Relaxation Time Constant From Dielectric Analyzing Concept

Long-Hsiang Li¹ and Wei-Hsiang Lai²

Institute of Aeronautics and Astronautics, National Cheng Kung University, Tainan, Taiwan, R.O.C

13:30-13:45 10086:

Effects of Carbon Dioxide on Isolated N-decane and Ethanol Droplet Combustions in Microgravity

S. Nakaya¹, K. Takase¹, S. Tarutani¹, D. Segawa¹ and T. Kadota¹

¹Department of Mechanical Engineering Osaka Prefecture University, Gakuen-cho, Naka-ku, Sakai, Osaka 599-8531, JAPAN

13:45-14:00 10139:

Characteristics of Mixture, Ignition and Combustion of Diesel Spray Injected by Micro-Hole Nozzle under Ultra- High Injection Pressure

K. Nishida, W. Zhang and O. A. Kuti

Department of Mechanical System Engineering, University of Hiroshima, Higashi Hiroshima 739-8527, Japan

14:00-14:15 10152:

One-Dimensional Completely-Prevaporized Compound-Drops Spray Flames

Chung-Yao Hsuan¹, Shuhn-Shyurng Hou², and Ta-Hui Lin¹

¹Department of Mechanical Engineering, National Cheng Kung University, Tainan 70101, TAIWAN

²Department of Mechanical Engineering, Kun Shan University, Tainan 71003, TAIWAN

14:15-14:30 10080:

Flowfield and Combustion Characteristic of a Self-Recirculation Type Low NO_x Burner

Kenichi SHINOMORI^{*1}, Kousuke KATOU², Kouji HOU², Daisuke SHIMOKURI², Satoru ISHIZUKA²

¹Miura Co.,Ltd. 7 Horie, Matsuyama, Ehime, 799-2696, JAPAN

²Department of Mechanical Engineering, Hiroshima University, 1-4-1 Kagamiyama, Higashihiroshima, Hiroshima, 739-8257, JAPAN

14:30-14:45 10131:

Energy Saving in Boiler by Using Methanol-contained Wastewater Emulsified Heavy Fuel Oil

Sheng-Lun Lin, Wen-Jhy Lee

Department of Environmental Engineering, National Cheng Kung University, Tainan 70101, TAIWAN

14:45-15:00 10181:

Analysis of the Spray Impingement Phenomena Inside a GDI Engine Combustion Chamber

Leonard Kuo-Liang Shih¹, Tien-Chiu Hsu²

¹Associate Professor, Department of Mechanical Engineering, National Yunlin University of Science and Technology, Taiwan.

²Ph.D. Candidate, Graduate School of Engineering Science and Technology, National Yunlin University of Science & Technology, Taiwan

15:00-15:20

Coffee Break

15:40-18:00

Session T-2 : May 25, 2009 (Monday)

Annual Conference of Chinese Taipei Section

17:00-18:30

VIP Room, 2nd Floor : May 25, 2009 (Monday)

International Advisory Board Meeting

All Advisory Board Members, Presidents (Section), Plenary Lecturers

May 26, 2009
Day 2 (Tuesday)

Room 401

08:30-09:20

Plenary Lecture #3 : May 26, 2009(Tuesday)

Understanding how Carbon Oxidises

Prof. Brian S. Haynes, Sydney University

Chair: Prof. J. T. Yang

09:20-09:40

Coffee Break

09:40-10:20

Invited Lecture : May 26, 2009(Tuesday)

The combustion of interacting droplets and particles array in convective environment

Prof. H. Y. Kim, Korea University

Chair: Prof. Y.C. Chao, National Cheng Kung University

10:20-12:05

Session 13 : May 26, 2009(Tuesday)

Combustion Diagnostics

Session-Chair: **H.C. Zhou, T. Hirasawa**

10:20-10:35 10012:

A Comparison of Low-Pressure Premixed Laminar Flames of 1,3-Butadiene and 1,3-Butadiene/Acetylene with Synchrotron Radiation

L. X. Wei¹, X. S. Wu¹, Z. Y. Chen¹, Z. H. Huang¹, T. Yuan², Y. Y. Li², Z. Y. Tian²

¹State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, 710049, People's Republic of China

²National Synchrotron Radiation Laboratory, University of Science and Technology of China, Hefei, 230029, People's Republic of China

10:35-10:50 10127:

Distributions of Temperature and Soot Volume Fraction in an Ethylene/Air Diffusion Flame Measured by Image Processing of Visible Radiation

C. LOU, J. LU, Y.P. SUN, H. C. Zhou*

State Key Laboratory of Coal Combustion, Huazhong University of Science and Technology, Wuhan 430074, China

10:50-11:05 10089:

Develop of Two-band Emission CT Pyrometry Employing CO₂ as Radiation Medium; Effect of barricades on the optical path

T. Ihara¹, H. Goto², B. Rajaei², S. Takahashi¹ and K. Wakai¹

¹Department of Mechanical & Systems Engineering, Gifu University, 1-1 Yanagido, Gifu, 501-1193, JAPAN

²Graduate School of Engineering, Gifu University, 1-1 Yanagido, Gifu, 501-1193, JAPAN

11:05-11:20 10107:

Simultaneous Measurements of Local Equivalence Ratio and Temperature in CH₄-Air Flames Using Chemiluminescence Sensor

T. S. Cheng¹, Y.-Y. Cheng², Y.-C. Chao², Y.-H. Li², and C.-Y. Wu²

¹Department of Mechanical Engineering, Chung Hua University, Hsinchu, 300, Taiwan, ROC

²Department of Aeronautics and Astronautics, National Cheng Kung University, Tainan, 701, Taiwan, ROC

11:20-11:35 10128:

Experimental Study and Fringe Simulation of Real-time Lateral Shearing

Interferometry for 2-D Axisymmetric Laminar Diffusion Ethylene/air Flame

W. Lv¹, H. C. Zhou¹, J. R. Zhu², S. Y. Huang²

¹State Key Laboratory of Coal Combustion, Huazhong University of Science and Technology, Wuhan, 430074, Hubei, P. R. CHINA

²The school of Energy and Power, Huazhong University of Science and Technology, Wuhan, 430074, Hubei, P. R. CHINA

11:35-11:50 10092:

Visualization of Ambient Gas Temperature Based on Two-Color LIF

T. Hirasawa¹, Y. Kamata², T. Kaneba¹ and Y. Nakamura³

Chubu University

¹School of Engineering, Chubu University, 1200 Matsumoto-cho, Kasugai, Aichi, 487-8501, Japan

²Kamata Science Works, 8-2-1, Chuou-dai, Kasugai, Aichi, 487-0011, Japan.

³Graduate School of Engineering, Hokkaido University, N 13 W 8, Kita-ku, Sapporo 060-8628, Japan.

11:50-12:05 10028:

Temperature Measurement Using Non-linear Two-Line Atomic Fluorescence

Q.N. Chan^{1,2}, P.R. Medwell², P.A.M. Kalt², Z.T. Alwahabi¹, B.B. Dally² and G.J. Nathan²

Schools of ¹Chemical and ²Mechanical Engineering, The University of Adelaide, S.A., 5005, AUSTRALIA

12:00-13:00

Lunch

13:00-13:40

Invited Lecture: May 26, 2009(Tuesday)

Research and Development on Supersonic Combustion Ramjet

Mr. P.K. Pandey, Secretary-Indian Section of the Combustion Institute & Vice President (Infotech Enterprises Ltd, Hyderabad), India

Chair: Prof. F. Qi, University of Science and Technology of China

13:40-15:10

Session 18 : May 26, 2009(Tuesday)

PDE and Supersonic Combustion

Session-Chair: **F. Qi, A. Matsuo**

13:40-13:55 10151:

Self-Ignition and Flame-Holding Behavior of Normal Alkanes in a Model Combustor of Supersonic Combustion Ramjet Engine

O. Imamura*, S. Suzuki**, Y. Ishikawa**, K. Fukumoto*, K. Nagao**, S. Nishida*, Y. Ujiiie**, M. Tsue*, and M. Kono*

*Department of Aeronautics and Astronautics, Graduate School of Engineering, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-8656, Japan

**Department of Mechanical Engineering, College of Industry Technology, Nihon University 1-2-1 Izumi-cho, Narashino, Chiba, 275-8575, Japan

13:55-14:10 10102:

Numerical Simulation of Unsteady Flow Field on Shock-Induced Combustion

K. Suzuki¹ and A. Matsuo²

¹Graduate School of Science and Technology, Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama, Kanagawa, 223-8522, JAPAN

²Department of Mechanical Engineering, Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama, Kanagawa, 223-8522, JAPAN

14:10-14:25 10204:

Cell Structure and Stability of Oblique Detonation Wave

J.-Y. Choi

Department of Aerospace Engineering, Pusan National University, Busan, 609-735, Republic of Korea

14:25-14:40 10205:

Numerical Study of Three-dimensional Detonation Wave Dynamics in a Circular Tube

D.-R Cho¹, Su-Hee Won², Edward Jae-Ryu¹ Shin¹, Jeong-Yeol Choi¹

¹Department of Aerospace Engineering, Pusan National University, Busan 609-735, KOREA

²School of Mechanical and Aerospace Engineering, Seoul National University, Seoul 151-742, KOREA

14:40-14:55 10176:

Thermochemical Exploration of Liquid Fueled Scramjet Combustor

P. Manna and Debasis Chakraborty

Directorate of Computational Dynamics, Defence Research and Development Laboratory, P.O. – Kanchanbagh, Hyderabad-58, INDIA

15:00-15:20

Coffee Break

15:20-16:00

Invited Lecture: May 26, 2009(Tuesday)

Recent Developments and Applications of Tunable Synchrotron VUV Photoionization Mass Spectrometry in Combustion Studies

Prof. F. Qi, University of Science and Technology of China

Chair: Prof. H. Y. Kim, Korea University

16:00-18:00

Session 22: May 26, 2009(Tuesday)

New Concepts of Combustion Technologies

Session-Chairs: **Satoshi Okajima, Sangmin Choi**

16:00-16:15 10180:

Experimental Study of Effects of Axi-Asymmetric Combustions Air Supply on Temperature Distribution Inside Oil-Fired Burner and Furnace

Y.G. Go¹, S.M. Choi¹ and W. Yang²

¹Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, 335 Gwanhangno, Yuseong-gu, Daejeon, 305-701, South Korea

²Korea Institute of Industrial Technology, 35-3, Hongcheon-Ri, Ipchang-Myun, Cheonan-Si, Chungnam, 331-825, South Korea

16:15-16:30 10164:

Reducing Noise of the Active Air Inlet Quick Burner using the Dispersing Combustion Method

Hung-Ming Chang¹, Tung-Sheng Shih², Cheng-Ping Chang², Kuei-Yi Lin², Chen-Ching Ting³

¹Institute of Mechatronic Engineering, National Taipei University of Technology, Taiwan

²Institute of Occupational Safety and Health, Council of Labor Affairs, Executive Yuan, Taiwan

³Dept. of Mechanical Engineering, National Taipei University of Technology, Taiwan

16:30-16:45 10216:

Mixing Mechanisms of Coalescence Microdroplets on a Droplet Transport Device with Hydrophobic Surface

J. Y. Yang,¹ Z. H. Yang,¹ and J. T. Yang,²

¹Department of Mechanical Engineering, National Tsing Hua University, Hsin Chu 30013, Taiwan

²Department of Mechanical Engineering, National Taiwan University, Taipei 10617, Taiwan

16:45-17:00 10009:

A Combustion Study at a Specific Wave Number in the Regime of Far Infrared Ray - The Challenge to Realization of High Efficiency Combustion and Low Emission of CO₂-
Satoshi Okajima

Professor Emeritus of Hosei University, 3-7-2 Kajino-Cho, Koganei-City, Tokyo 184-8584 Japan

17:00-17:15 10120:

Numerical Analysis for Combustion Processes and NO_x Emission Characteristics in Small-Scale Oscillating Combustion Radiant Tube Burner

Hoojoong Kim¹ and Hanchang Cho²

¹Advanced Engineering R&D Center, Kyungwon Tech Inc, Sangdaewon-Dong, Jungwon-Gu, Seongnam, 462-716, KOREA

²Energy & Research Department, Research Institute of Industrial Science & Technology, Hyoja-Dong, Nam-Gu, Pohang, 790-600, KOREA

17:15-17:30 10228

An effect of increase of speed of H₂/O₂ flame doped with trimethylphosphate in the frame of Zeldovich theory of flame with branched chain reactions

O. P. Korobeinichev^{1,2}, T.A. Bolshova¹

¹*Institute of Chemical Kinetics and Combustion SB RAS, Novosibirsk, 630090, Russia, Institutskaya str. 3*

²*Department of Mechanical Engineering National Chiao Tung University Hsinchu 30010, Taiwan*

17:30-17:45 10095:

Effects of Preheating and Dilution of Reactants on Dynamics of Thermal Pulse Combustor

Sirshendu Mondal¹, Achintya Mukhopadhyay¹ and Swarnendu Sen¹

¹*Department of Mechanical Engineering, Jadavpur University, Kolkata - 700032, INDIA*

Room 402A

09:40-12:00

Session 9 : May 26, 2009 (Tuesday)

Laminar Flames

Session-Chairs: **Huang ZuoHua, Kaoru Maruta**

09:40-09:55 10004:

Low Pressure Premixed Laminar *n*-heptane+propane/oxygen Flames Studied with Tunable Synchrotron photoionization

Yu Wu¹, Wei LiXia¹, Ma ZhiHao¹, Huang ZuoHua¹, Yuan Tao², Tian ZhenYu² and Li YuYang²

¹*State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an 710049, China;*

²*National Synchrotron Radiation Laboratory, University of Science and Technology of China, Hefei 230029, China*

09:55-10:10 10154:

The Effect of Inert Dilution on Flickering Motions of Jet Diffusion Flames

Chia-Wei Hu¹, Chih-Hsuan Chen¹, Shuhn-Shyurng Hou² and Ta-Hui Lin¹

¹*Department of Mechanical Engineering, National Cheng Kung University, Tainan 70101, TAIWAN*

²*Department of Mechanical Engineering, Kun Shan University, Tainan 71003, TAIWAN*

10:10-10:25 10115:

Dimension Reduction Model for Auto-ignition in Micro Flowreactor with Controlled Temperature Profile

Hisashi Nakamura¹, Hiroshi Oshibe¹ and Kaoru Maruta¹

¹*Institute of Fluid Science, Tohoku University, Katahira 2-1-1, Aoba-ku, Sendai, 980-8577, JAPAN*

10:25-10:40 10116:

Two Stage Reactions of Dimethyl Ether – Air Mixture in Micro Flowreactor with Controlled Temperature Profile

Hiroshi Oshibe¹, Hisashi Nakamura¹, Takuya Tezuka¹, Susumu Hasegawa¹ and Kaoru Maruta¹

¹*Institute of Fluid Science, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai, Miyagi 980-8577, Japan*

10:40-10:55 10110:

Propagation of Premixed DME/air Flames in Low Speed Mixture Flows in Mesoscale Tubes

H. L. Yang^{1, 2*}, H. Nakamura¹, K. Maruta¹

¹*Institute of Fluid Science, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai 980-8577, Japan*

²*Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences, Guangzhou 510640, China*

10:55-11:10 10005:

Experimental Investigation of the Effects of Carbon-Dioxide Addition on the Burning Characteristics of Ethanol Fed Porous Sphere under Mixed Convection

V. Avinash¹, V. Raghavan² and Parag Shintre³

¹*Department of Mechanical Engineering, NIT Trichy*

²*Department of Mechanical Engineering, IIT Madras, Chennai, INDIA*

³*Department of Mechanical Engineering*

11:10-11:25 10132:

Characteristics of Laminar Lifted Flames of Methane, Ethylene and *n*-Butane Jets in

Coflow Air with Elevated Temperature

B. C. Choi and S. H. Chung

School of Mechanical and Aerospace Engineering, Seoul National University, Seoul 151-744, Republic of Korea

11:25-11:40 10013:

Possible Consumption Pathways of 2,5-Dimethylfuran in Low-Pressure Premixed Laminar Flames

X. S. Wu¹, L. X. Wei¹, Z. H. Huang¹, T. Yuan², K. W. Zhang²

¹*State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, 710049, People's Republic of China*

²*National Synchrotron Radiation Laboratory, University of Science and Technology of China, Hefei, 230029, People's Republic of China*

11:40-11:55 10090:

A Study on Hydrogen-Air Flames Propagating through a Narrow Channel

Y. Nishina¹, K. Satoh², T. Yoshihashi³, T. Obara¹ and S. Ohyagi¹

¹*Graduate School of Mechanical Science*

²*Department of Mechanical Engineering*

³*Technical Support Division, IRO, Saitama University, Shimo-Ohkubo, Sakura-Ku, Saitama, 338-8573, JAPAN*

12:00-13:00

Lunch

13:00-15:00

Session 14 : May 26, 2009 (Tuesday)

Laminar Flames

Session-Chairs: **H. Kobayashi, L. X. Zhou**

13:00-13:15 10077:

Effect of A Uniform Electric Field on Laminar Premixed Ethylene-Air Flames

Y. Wang¹, G.J. Nathan², Z.T. Alwahabi³, K.D. King³, Q. Yao¹

¹*Department of Thermal Engineering, Tsinghua University, Beijing 100084, China*

²*School of Mechanical Engineering, The University of Adelaide, S.A. 5005, Australia*

³*School of Chemical Engineering, The University of Adelaide, S.A. 5005, Australia*

13:15-13:30 10040:

Thermal Characteristics of a Premixed Impinging Flame at Different Impingement Plate Temperature

C.W. Leung*, H.B. Li and C.S. Cheung

Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hong Kong

13:30-13:45 10137:

Numerical Analysis of CH₄/O₂ Premixed Flames Diluted by Superheated Steam at High Pressure

Y. Ogami¹, Y. Tamaki¹, M. Kumagami² and H. Kobayashi¹

¹*Institute of Fluid Science, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai, Miyagi, 980-8577, JAPAN*

²*JGC Corporation, 2-3-1 Minato Mirai, Nishi-ku, Yokohama, 220-6001, JAPAN*

13:45-14:00 10020:

The Instability of Lean Hydrogen-Air Premixed Flames under Adiabatic and Non-Adiabatic Conditions

S. Kadowaki¹ and K. Nakaya²

¹*Department of System Safety, Graduate School of Management of Technology, Nagaoka University of Technology, JAPAN*

²*Department of Mechanical Engineering, Graduate School of Engineering, Nagaoka University of Technology, JAPAN*

14:00-14:15 10147:

Experiment on the Stabilization Characteristics of a Methane-Air Non-premixed Edge Flame in a Cross-Flowing Mixing Layer

Min Jung Lee, Nam Il Kim

School of Mechanical Engineering, Chung-Ang University, Korea

14:15-14:30 10019:

Computed Extinction Limits and Flame Structures of H₂/O₂ Counterflow Diffusion Flames with CO₂ Dilution

H. Y. Shih, S. L. Chen and C. L. Hsu

Department of Mechanical Engineering, Chang Gung University, TAIWAN

14:30-14:45 10056:

Experimental Investigation on Structure of a Propane/Air Triple Flame

K. B. Sahu¹, A. Datta², S. Sen³ and A. Sarkar³

¹*Department of Mechanical Engineering, Orissa Engineering College, INDIA*

²*Department of Power Engineering, Jadavpur University, INDIA*

³*Department of Mechanical Engineering, Jadavpur University, INDIA*

15:00-15:20

Coffee Break

15:20-17:50

Session 19 : May 26, 2009 (Tuesday)

Laminar Flames

Session-Chairs: **Suk Ho Chung, William L. Roberts**

15:20-15:35 10162:

Numerical Study on NO Formation in CH₄/NH₃-Air Nonpremixed Flames

S. K. Choi and S. H. Chung

School of Mechanical and Aerospace Engineering, Seoul National University, KOREA

15:35-15:50 10021:

Measurements of Premixed Laminar Burning Velocities and Markstein Lengths for Isooctane-Air-N₂ Mixtures.

F. Ran, X. B. Wang, R. J. Zhu, Z. Y. Zhang, J. Xiang and Z. H. Huang

State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, China

15:50-16:05 10199:

A Numerical Study Of Formaldehyde Formation In DME/Air Counterflow Diffusion Flame

L.Z.Zhang^{1,2}, D.Q. Zhao^{1,2}, L.Q. Jiang^{1,2}, X.H. Wang^{1,2} and X.J.Zeng^{1,2}

¹*Guangzhou Institute of Energy Conversion, the Chinese Academy of Sciences, China*

²*Key Laboratory of Renewable Energy and Gas Hydrate, Chinese Academy of Sciences, China*

16:05-16:20 10124:

Effect of Burner Diameter on Heat Transfer and CO Emissions

C.S. Cheung, C.W. Leung and H.B. Li

Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hong Kong SAR, China

16:20-16:35 10172:

Effect of AC Electric Fields on the Stabilization of Premixed Laminar Jet Flames

M. K. Kim, H. H. Kim and S. H. Chung

School of Mechanical and Aerospace Engineering, Seoul National University, Seoul 151-744, Korea

16:35-16:50 10133:

Flame Behavior of a Stagnating Premixed Flame with a Vertically Impinging Vortex Tube

Tomokazu Yamada, Takeshi Yokomori, and Toshihisa Ueda

School of Science for Open and Environmental Systems, Keio University, 3-14-1, Hiyoshi, Kohoku-ku, Yokohama, Kanagawa 223-8522, Japan

16:50-17:05 10018:

Studies on the Outwardly and Inwardly Propagating Spherical Flames with Radiative Heat Loss

Zheng Chen¹, Yiguang Ju²

¹*Department of Mechanics and Aerospace Engineering, College of Engineering, Peking University, Beijing, 100871, People's Republic of China*

²*Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ 08544, USA*

17:05-17:20 10034:

Laminar Diluted Hydrogen Burke-Schumann Flames – Effects Of Lewis Number And Unsteadiness

Doyoub Park¹, Marcos Chaos², Ruey-Hung Chen^{1,*} and William L. Roberts³

¹*Department of Mechanical, Materials and Aerospace Engineering, University of Central*

²*FM Global Engineering and Research*

³*Department of Mechanical and Aerospace Engineering, North Carolina State University*

17:20-17:35 10068:

A Computational Study on Laminar Burning Velocity, Flame Temperature and Flame Stability of Hydrogen Enriched Natural Gas

Yuyin Zhang^{*1}, Satoru Ishizuka²

¹*Department of Mechanical Engineering, Tokyo Denki University, Tokyo 1018457, Japan*

²*Department of Mechanical System Engineering, Hiroshima University, Higashi-Hiroshima 7398527, Japan*

Room 402B

09:40-12:00

Session 10 : May 25, 2009 (Tuesday)

Turbulent Combustion

Session-Chairs: **S. S. Shy, T. Haegawa**

09:40-09:55 10064:

Measured Fractal Properties of Premixed Flames on a Low-Swirl Burner at High Reynolds Numbers and Their Relation to Turbulent Burning Velocities

S. S. Shy, C. C. Liu and C. H. Yang

Department of Mechanical Engineering, Center for Energy Research, College of Engineering National Central University, Zhong-li City, Taoyuan 32001, TAIWAN

09:55-10:10 10069:

Ignition Transition in Randomly Stirred Explosive Gases

S. S. Shy, W. T. Shih, C. C. Liu and H. C. Chen

Department of Mechanical Engineering, Center for Energy Research, College of Engineering National Central University, Zhong-li City, Taoyuan 32001, TAIWAN

10:10-10:25 10051:

Sparse-Lagrangian Simulations of a Passive Scalar in a Turbulent Jet

M.J. Cleary and A.Y. Klimenko

The University of Queensland, Division of Mechanical Engineering, St. Lucia, Queensland, 4072, AUSTRALIA

10:25-10:40 10015:

Comparison of Two Swirl-stabilized Flames: Pre-mixed Flame and Inverse Diffusion Flame

H.S Zhen*, C.W Leung and C.S Cheung

Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hung Hom, Hong Kong, China

10:40-10:55 10159:

Modelling of Transport Equation for Turbulent Kinetic Energy based on DNS of Turbulent Premixed Flames in Different Turbulence Conditions

S. Nishiki¹, R. Himeno² and T. Hasegawa³

¹*Department of Mechanical Engineering, Nagaoka University of Technology, Kamitomioka, Nagaoka, 940-2188, JAPAN*

²*Advanced Center for Computing and Communication, The Institute of Physical and Chemical Research (RIKEN), Hirosawa, Wako, 351-0198, JAPAN*

³*Center for Interdisciplinary Studies on Resource Recovery and Refinery in Asia, EcoTopia Science Institute, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, 464-8603, JAPAN*

10:55-11:10 10104:

2-D Event Driven Simulation of Granular Bed under Different Vertical Vibrating Mode Shapes

Jun Huang and Cheong Ki Chan

Department of Applied Mathematics, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China

11:10-11:25 10087:

NO_x Emission Characteristics of Gaseous and Liquid Fuels in Laboratory-Scale Furnace Combustion

O. Akhyarsi, M. Farid and S. Noda

Department of Mechanical Engineering Toyohashi University of Technology, Tempaku-cho, Toyohashi 441-8580, Japan

11:25-11:40 10109:

Ignition Characteristics of N₂/O₂ Plasma Jet in a Subsonic Flow

Yoshinori Matsubara, Kenichi Takita

Department of Aerospace Engineering, Tohoku University, Aramaki Aza Aoba, Aoba-ku, Sendai, 980-8579, Japan

11:40-11:55 10046:

Characterization of Turbulent LPG Inverse Diffusion Flame in Recessed Backstep and Coaxial Burners

Mahesh S. and D. P. Mishra

Department of Aerospace Engineering, Indian Institute of Technology, Kanpur-208016, India

12:00-13:00

Lunch

13:00-15:00

Session 15 : May 26, 2009 (Tuesday)

Turbulent Combustion

Session-Chair: **Youngbin Yoon , U.S.P.Shet**

13:00-13:15 10125:

Acoustic Forcing Effects on NO_x Emission in Lifted Non-premixed Turbulent Hydrogen Jet Flames with Coaxial Air

Jeongseog Oh, Pilwon Heo, Youngbin Yoon

School of Mechanical and Aerospace Engineering, Seoul National University, Gwanak-ro 599, Gwanak-gu, Seoul, 151-742, Korea

13:15-13:30 10038:

Large Eddy Simulation of in-Cylinder Turbulent Flow Field During Intake Stroke of an IC Engine

Maozhao XIE, Ping YANG

School of Energy and Power Engineering, Dalian University of Technology, Dalian 116024, China

13:30-13:45 10129:

Study of Propane-air Turbulent Jet Diffusion Flame with LES and PDF Method

Y. D. Zhang, M. L. Xie, H. C. Zhou

Huazhong University of Science and Technology, Wuhan, 430074, Hubei, P. R. CHINA

13:45-14:00 10117:

Local and Global Flame Structures of High Reynolds Number H₂/Air Turbulent Premixed Flames

Shoichi Tanaka, Makoto Sato, Takehiko Seo, Mamoru Tanahashi, and Toshio Miyauchi

Department of Mechanical and Aerospace Engineering, Tokyo Institute of Technology, 2-12-1 Ookayama, Meguro-ku, Tokyo, 152-8550, JAPAN

14:00-14:15 10203:

DNS Analysis on Correlation between Local Burning Velocity and Local Stretch Rate for Turbulent Premixed Flames with Different Lewis Numbers

K. Tsuboi¹ and T. Hasegawa²

¹*Department of Energy Systems Engineering, Okayama University, 3-1-1, Tsushima-naka, Okayama, 700-8530, JAPAN*

²*EcoTopia Science Institute, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, 464-8603, JAPAN*

14:15-14:30 10174:

Effect of Changing Combustor Pressure on Flame Instability and Emission

Characteristics in the Swirl Stabilized Flame

Gyung-Min Choi

Department of Mechanical Engineering, Pusan National University, KOREA

14:30-14:45 10111:

Large Eddy Simulation of a Premixed Flame under High Swirl

K.J Nogenmyr¹, R.C.Orbay², J.klingmann², X.S.Bai², C.K.Chan¹

¹*Department of Applied Mathematics, The Hong Kong Polytechnic University, Kowloon, Hong Kong*

²*Department of Energy Sciences Faculty of Engineering Lund University, 221 00 Lund, Sweden*

14:45-15:00 10198:

Experimental Studies on Stability of Multiple Interacting Jet Flames

K. Harinath Babu, U.S.P.Shet and Ramnath Bhagat

Dept. of Mechanical Engineering, IIT Madras, Chennai, INDIA

15:00-15:20

Coffee Break

15:20-17:35

Session 20 : May 26, 2009 (Tuesday)

Turbulent Combustion and Laminar Combustion

Session-Chairs: **R. F. Huang, C. W. Leung**

15:20-15:35 10148:

Unsteady Reacting Flow Study of a Trapped Vortex Combustor

Krishna Kant Agarwal and R. V. Ravikrishna

Department of Mechanical Engineering, Indian Institute of Science, Bangalore, 560012, INDIA

15:35-15:50 10043:

Visualization Studies of Premixed Impinging Flames with Induced Swirl

D. D. Luo*, C. W. Leung and C. S. Cheung

Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hong Kong

15:50-16:05 10177:

Numerical Investigation of Externally Excited Non-Premixed Flame in a Dump Combustor

C. Balaji* and S. R. Chakravarthy

Department of Aerospace Engineering, Indian Institute of Technology Madras, Chennai, India

16:05-16:20 10126:

Modeling of Impinging Premixed Multi-slot Jet Efficiency and Greenhouse Gas Emissions

M.C. Wong, T.T. Wong and C.W. Leung

Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hong Kong

16:20-16:35 10026:

Aerodynamic Characteristics and Thermal Structure of Non-Premixed Reacting Swirling Wake

R. F. Huang and S. C. Yen

Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan, R.O.C.

16:35-16:50 10105:

Experimental Study of Oxy-fuel Combustion in a Swirl-Stabilized Burner

Seepana and Sreenivas Jayanti

Department of Chemical Engineering, IIT Madras, Chennai-600036, India

16:50-17:05 10027:

Investigation on Turbulent Flow through Porous Media Based on a Pore-Network Model

Dong Ming, Maozhao Xie

School of Energy and Power Engineering Dalian University of Technology, Dalian 116024, China

17:05-17:20 10211:

Numerical Investigations of Laminar Jet Flames of H₂-Co-Co₂-Air Mixtures

Ratna Kishore V.

Dept. of Mechanical Engg., IIT delhi, Hauz Khas, Delhi-110016

17:20-17:35 10219:

Influence of Vortex-Interaction and Unsteady Flow on Non-Premixed Flames

C. C. Li¹, and J. T. Yang^{*2}

¹*Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, 30043, Taiwan*

²*Department of Mechanical Engineering, National Taiwan University, Taipei, 10617, Taiwan*

Room 402C

09:40-12:00

Session 11 : May 26, 2009 (Tuesday)

Engine Combustion

Session-Chair: **M. Shioji, C.G. Saravanan**

09:40-09:55 10175:

Analysis of Flammable Mixture Formation in a Methane Unsteady Jet

C. Kondo¹, H. Kawanabe¹ and M. Shioji¹

¹*Graduate School of Energy Science, Kyoto University, Yoshida Honmachi, Sakyo-ku, Kyoto, 606-8501, Japan*

09:55-10:10 10206:

Effect of Water Injection On Nitric Oxide Emission Of A Single Cylinder Port Injection Spark Ignition Gasoline Engine

Jing-Lun Lee², Ming-Hsun Wu^{1*}, Rong-Horng Chen², Ta-Hui Lin¹, and Jun-Kai Wang¹

¹*Department of Mechanical Engineering, National Cheng Kung University, Tainan City, 70101, TAIWAN*

²*Department of Mechanical Engineering, Southern Taiwan University, Tainan County, 71005, TAIWAN*

10:10-10:25 10221:

Characterization and performance study of biodiesel from waste cooking oil in a direct injection diesel engine

P. Mohanan

Department of Mechanical Engineering, National Institute of Technology Karnataka; Surathkal-575025, Karnataka, India

10:25-10:40 10023:

Effect of Partially Premixed and Hydrogen Addition on Lean Burn Natural Gas Direct Injection Combustion

J. H. Wang, Z. H. Huang, J. J. Zheng and H. Y. Miao

State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, 710049, P.R. CHINA

10:40-10:55 10146:

Estimate of Maximum Allowable Droplet Size for Motorcycle Gasoline Direct Injection Engines

Hsin-Luen Tsai^{1*} and J.-Y. Chen²

^{1*}*Department of Electronic Engineering, Kao Yuan University, Kaohsiung, Taiwan, R.O.C.*

²*Department of Mechanical Engineering, University of California at Berkeley, Berkeley, California, 94720, USA*

10:55-11:10 10007:

Experimental study on 2-methoxyethyl acetate additive with EGR to reduce emission from diesel engine

C.G. Saravanan, A.P. Sathiyagnanam and R. Selvakumar

Department of Mechanical Engineering, Annamalai University, Annamalainagar – 608 002. India

11:10-11:25 10008:

Effect of Oxygenate Fuel to Study the Combustion and Emission Characteristics on DI Diesel Engine

C.G. Saravanan¹, M. Kavin¹, M. Gopalakrishnan²

¹Department of Mechanical Engineering, Annamalai University, Annamalainagar – 608 002. India

²Department of Chemistry, Annamalai University, Annamalainagar – 608 002. India

11:25-11:40 10213:

Performance and Flammability Prediction of a Gas Engine Fueled by Gasification Syngas

Wei-Cheng Chen, Hen-Wen Hsu, Jenn-Shye Wang

Industrial Technology Research Institute, Energy and Environment Laboratory, Taiwan, R.O.C.

12:00-13:00

Lunch

13:00-15:00

Session 16 : May 26, 2009 (Tuesdays)

Engine Combustion

Session-Chair: **P.Govindasamy, Y.Y. Wu**

13:00-13:15 10032:

Heat Release Analysis of Magnetically Activated Fuel on Catalytic Coated Two Stroke Gasoline Engine

P. Govindasamy¹ and S.Dhandapani²

¹Department of Mechanical Engineering, Kongu Engineering College, Perundurai, 638 052, INDIA

²Department of Mechanical Engineering, Dr. NGP Institute of Technology, Coimbatore, 641 013, INDIA

13:15-13:30 10029:

Oxidation of Aldehydes from the Exhaust Gases of C.I. Engine using Alcohol blends with Diesel in Semi-Adiabatic Air-Gap Copper Crown Piston as Unconventional Catalytic Converter

Dr.Sudeer Prem Kumar¹, Dr.Veeresh.K Basalalli², Hiregoudar Yerrennagouda³

¹Department of Mechanical JNTU Egg. College, Hyderabad

²Department of Mechanical R.Y.M Engineering College Bellary -583104, Karnataka-State, India

³Sir M Vishveshvariah Ins of Tech Bangalore

13:30-13:45 10081:

A Two-zone Combustion Model for a Hydrogen Fuelled S I Engine

Saleel Ismail and Pramod. S. Mehta

IC Engines Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai 600 036, INDIA

13:45-14:00 10024:

Effect of Hydrogen Addition on Early Flame Growth of Lean Burn Natural Gas-Air Mixtures

J. H. Wang, Z. H. Huang, C. L. Tang and J. J. Zheng

State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an 710049, P.R. CHINA

14:00-14:15 10113:

Thermodynamic Analysis of Temperature Effects on HCCI Engine

Y.-Y. Wu and C.-T. Jang

Department of Vehicle Engineering, National Taipei University of Technology, Taipei 10608, Taiwan

14:15-14:30 10114:

Temperature Effects on the Combustion of HCCI Engine

Y.-Y. Wu¹, C.-T. Jang¹, and B.-L. Chen²

¹Department of Vehicle Engineering, National Taipei University of Technology, Taipei 10608, Taiwan

²Mechanical and Systems Research Laboratories, Industrial Technology Research Institute, Hsinchu, Taiwan

14:30-14:45 10183:

An Investigation for Autoignition by Spray Jet Injection of Fuel in the H₂O₂/Kerosene Bipropellant Thruster

Sungkwon Jo and Sejin Kwon

Department of Aerospace Engineering KAIST, 373-1, Guseong-dong, Yuseong-gu, Daejeon, 305-701, Korea

14:45-15:00 10156:
Some Studies on Chemical Composition, and Properties of Ester of Edible and Inedible Vegetable Oils, and Their Use in CI Engine
Sudesh Bekal*, T.P. Ashok Babu**
**Research Scholar, National Institute of Technology Karnataka, Suratkal-575 025, India.*
***National Institute of Technology Karnataka, Suratkal-575 025, Karnataka, India.*

15:00-15:20
Coffee Break

15:20-17:35

Session 21 : May 26, 2009 (Tuesday)

Engine Combustion

Session-Chair: **S. Dhandapani, C.S.Cheung**

15:20-15:35 10033:

Performance of Dee Stabilized Diesel - Ethanol Blend in a Four Stroke Compression Ignition Engine

Dhandapani S*, Venkatachalam R1**, Nedunchezian N**

** Dr.N.G.P. Institute of Technology, Coimbatore-641 035.*

*** Department of Automobile Engineering, Institute of Road & Transport Technology, Erode-638 316*

15:35-15:50 10037:

Performance, Combustion and Emission Analysis on a Diesel Engine using Three Different Bio-Diesels

V.Manieniyana^a and Dr.S. Sivaprakasamb^b

^aLecture in Mechanical Enng, Engg wing ,Directorate of Distance Education, Annamalai University ,

^bReader in Mechanical Engg, Department of Mechanical Engineering, Annamalai University, Annamalainagar -608 002, Tamil Nadu , India.

15:50-16:05 10100:

Incylinder Emission Control in Multi-Cylinder S.I. Engine by Coating Metal Oxides on Piston Top and Cylinder Head

K. Parthiban¹ and K.Jeyachandran²

¹Senior Lecturer, Department of Mechanical Engineering, Thanthai Periyar Government Institute of Technology, Vellore, Tamil Nadu, INDIA

²Principal, Vel Tech Engineering College, Director (Research) (Retd.), Anna University, Chennai, Tamil Nadu, INDIA

16:05-16:20 10099:

Effect on the Physical and Chemical Properties of Biodiesels under Different Storage Conditions

Jhen-yu Ye, Yo-ping Greg Wu* and Ya-fen Lin

Department of Chemical and Materials Engineering, National Ilan University, I-lan, 26047, Taiwan, R.O.C.

16:20-16:35 10220:

Low Emissions from a Diesel Engine with Diesel/Methanol Compound Combustion and Diesel Oxidation Catalyst

C.S. Cheung¹, Z.H. Zhang^{1,2}, T.L. Chan¹ and C.D. Yao²

¹Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hong Kong SAR, China

²State Key Laboratory of Engines, Tianjin University, Tianjin, 300072, P.R. China

16:35-16:50 10042:

Performance and Emission Characteristics of a DI Diesel Engine using Water-Biodiesel Emulsion as Alternate Fuel with DEE as Ignition Improve

sachuthananthan B

Anna university, chennai ,india

16:50-17:05 10084:

Experimental Investigations on Combustion, Performance and Emission Characteristics of Karanja and Jatropha Biodiesel Fuels in a Turbocharged Direct Injection Diesel Engine

K. Anand, R.P. Sharma and Pramod S Mehta*

Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai-600 036, India.

17:05-17:20 10085:

Pollution Control in Multi-Cylinder S.I. Engines Using Catalytic Converter

K. Parthiban¹ and K.Jeyachandran²

¹*Senior Lecturer, Department of Mechanical Engineering, Thanthai Periyar Govt. Institute of Technology, Vellore, Tamil Nadu, INDIA*

²*Principal, Vel Tech Engineering College, Director (Research) (Retd.), Anna University, Chennai, Tamil Nadu, INDIA*

Room 402D

09:40-12:00

Session 12 : May 26, 2009 (Tuesday)

Combustion Modeling

Session-Chairs: **L.X. Zhou , C.E. Lee**

09:40-09:55 10011:

A Two-Fluid Large-Eddy Simulation of Separating Gas-Particle Flows

Y. Liu¹, L.X. Zhou¹, C.X. Xu¹, L.Y. Hu²

¹*Department of Engineering Mechanics, Tsinghua University, Beijing 100084, China;*

²*School of Mechanical and Power Engineering, Shanghai Jiaotong University, Shanghai 200220, China*

09:55-10:10 10003:

Numerical Simulation of Methanol Droplet Combustion in Carbon-dioxide Enriched Air

V. Raghavan¹ and George Gogos²

¹*Assistant Professor and Corresponding Author, Department of Mechanical Engineering, IIT Madras, Chennai, INDIA*

²*Professor, Department of Mechanical Engineering, University of Nebraska-Lincoln, Lincoln, NE, USA*

10:10-10:25 10193:

Friction-Induced Ignition and Initiation Modeling of AP/HTPB Composite

Min-cheol Gwak, Tae-yong Jung and Jai-ick Yoh*

School of Mechanical and Aerospace Engineering, Seoul National University, Korea

10:25-10:40 10112:

A Presumed Multivariate Beta-PDF Modeling of Confined Turbulent Nonpremixed Flames

I. G. Parwatha¹ and S. Noda²

¹*Graduate School of Mechanical Engineering, Toyohashi University of Technology, Tempaku-cho, Toyohashi, 441-8580, JAPAN*

²*Department of Mechanical Engineering, Toyohashi University of Technology, Tempaku-cho, Toyohashi, 441-8580, JAPAN*

10:40-10:55 10065:

Large Eddy Simulation of Combustion Instabilities with Inlet Geometry Variations in a Lean-Premixed Swirl Combustor

C. H. Hwang^{1,a}, C. E. Lee^{1,*} and S. W. Kim²

¹*Department of Mechanical Engineering, Inha University, Incheon, 402-751, SOUTH KOREA*

²*Korea Institute of Industrial Technology, Cheonan-si, Chungnam, 331-852, SOUTH KOREA*

10:55-11:10 10096:

Simulation of Ignition between a Contact Surface and a Shock

J. Melguizo-Gavilanes, N. Rezaeyan and L. Bauwens

Department of Mechanical and Manufacturing Engineering, University of Calgary, T2N 1N4, CANADA

11:10-11:25 10055:

Effect of CO₂ Addition on Flashback Limits in CH₄ Swirling Combusting Flows

N. Shelil, N. Syred, A. J. Griffiths

Centre for Research in Energy, Waste and the Environment (CREWE), Cardiff School of Engineering, The Queen's Buildings, CF243AA, Cardiff, UK

11:25-11:40 10106:

Selecting Critical Variables Associated Gas Turbine Inlet Temperature by Stepwise

Regression Approach

Ten-Der Jane

Taiwan Power Company Datan Thermal Power Plant

12:00-13:00

Lunch

13:00-15:00

Session 17 : May 26, 2009 (Tuesday)

Combustion Modeling

Session-Chairs: A. Dvorjetski, J.I. Yoh

13:00-13:15 10047:

Effects of Water Mist Dynamics and Droplet Size on Suppression of Counterflow Diffusion Flames

A. Dvorjetski¹, J.B. Greenberg¹

¹Faculty of Aerospace Engineering, Technion, Israel Institute of Technology, Haifa 32000, ISRAEL

13:15-13:30 10006:

Optimizing Bsf of Low-Nox, Emission Standard Compliant Automobile Engines, by Tuning Engine Parameters

Prahlad G.Menon¹ and P. Mohanan¹

¹Department of Mechanical Engineering, National Institute of Technology Karnataka, Surathkal, 575025, INDIA

13:30-13:45 10059:

Effects of Preferential Diffusion on Spherical Flame Initiation and Minimum Ignition Energy

Zheng Chen¹, Michael P. Burke², Yiguang Ju²

¹Department of Mechanics and Aerospace Engineering, College of Engineering, Peking University, Beijing 100871, People's Republic of China

²Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, NJ 08544, USA

13:45-14:00 10063:

Modelling of Deposit Characteristics during Slagging Co-Combustion of Coal and Wood Considering the Deposition Surface Capacity

X.H. Wang^{1,2}, D.Q. Zhao^{1,2}, L.Q. Jiang^{1,2} and W.B. Yang^{1,2}

¹Guangzhou Institute of Energy Conversion, the Chinese Academy of Sciences, No.2, Neng-yuan Rd., Wu-shan, Tian-he District, Guangzhou, 510640, China

²Key Laboratory of Renewable Energy and Gas Hydrate, Chinese Academy of Sciences, No.2, Neng-yuan Rd., Wu-shan, Tian-he District, Guangzhou, 510640, China

14:00-14:15 10194:

Vapor Explosion Study using Multi-Material Phase Transformation Model

Ki-Hong Kim, Ardian Gojani, and Jai-ick Yoh

Department of Mechanical and Aerospace Engineering, Seoul National University, Seoul, 151-741, Korea

14:15-14:30 10197:

Numerical Predictions of NOx in A Swirl Burner Operating With Partially Premixed Fuel Jet

Manjunath B.C¹, U.S.P.Shet² and V.Raghavan³

¹Graduate Student: Dept. of Mech. Engg., IIT Madras.

²Professor, Dept. of Mechanical Engineering, IIT Madras, Chennai-600 036, INDIA

³Assistant Professor; Dept. of Mech. Engg., IIT Madras.

14:30-14:45 10192:

Transported PDF modeling for turbulent piloted jet flame (Flame D)

J. Lee¹, Y. Kim^{1*} and M. Muradoglu²

¹Department of Mechanical Engineering, Hanyang University, Haengdang-dong 17, Sungdong-ku, Seoul, KOREA

²Department of Mechanical Engineering, Koc University, Rumelifeneri Yolu, Sariyer/Istanbul, 34450, TURKEY

14:45-15:00 10031:

Modelling for Simulation of Oxygenated Diesel's Combustion and Performance in DI

Diesel Engine a Review

S. Loganathan

Department of Mechanical Engineering, Madha Engineering College, Kundrathur, Chennai 600069, India

15:00-15:20

Coffee Break

15:40-18:00

Session T-3 : May 26, 2009 (Tuesday)

Annual Conference of Chinese Taipei Section

May 27, 2009 Day 3 (Wednesday)

Room 401

08:30-09:20

Plenary Lecture #4 : May 27, 2009(Wednesday)

Recent Progress in High-pressure Combustion Research

Prof. Hideaki Kobayashi, Tohoku University

Chair: S. S. Shy

09:20-09:40

Coffee Break

09:40-10:20

Invited Lecture: May 27, 2009(Wednesday)

Topic: Personal Power systems: Microjet Flames and Thermophotovoltaic systems

Prof. Y.C. Chao, National Cheng Kung University

**Chair: Mr. P.K. Pandey, Secretary-Indian Section of the Combustion Institute & Vice President
(Infotech Enterprises Ltd, Hyderabad)**

10:20-12:05

Session 27: May 27, 2009(Wednesday)

New Concepts of Energy Technologies

Session-Chairs: **M. Z. Xie, Y.C. Chao**

10:20-10:35 10060:

Operating Features and Energy Utilization of a Fire Pit

W. C. Sun and M. Z. Xie

School of Energy and Power Engineering, Dalian University of Technology, Dalian, 116024, CHINA

10:35-10:50 10121:

Parametric Study of Fuel Supply Dynamics for a PFI Engine Cold Start

*B. Prem Anand, *C.G Saravanan, **S. Ganesh Kumar

**Department of Mechanical engineering, Annamalai University, Annamalainagar – 608 002. India.*

*** Application Engineer, National Instruments, Chennai – 600 045*

10:50-11:05 10160:

Cold Flow Simulation of a Meso-Scale Combustor for Personal Power System

Wei-Chun Wang¹, Chen-I Hung¹, Yei-Chin Chao²

¹Department of Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan, 701, ROC

²Institute of Aeronautics and Astronautics, National Cheng Kung University, Tainan, Taiwan, 701, ROC

11:05-11:20 10196:

Experimental Characterization of Flame Acceleration and Deflagration-to-Detonation

Transition In Meso-Scale Tubes

Chan-Yu Wang and Ming-Hsun Wu*

Department of Mechanical Engineering, National Cheng Kung University, Tainan City, 70101, TAIWAN

11:20-11:35 10212:

Design and Experiments of In-Line Heavy Oil Emulsion Fuel Combustion without Emulsifier Added

Yi-Yin Li, Hon-Wen Chiao, Tzeng-Wuu Wey, Jing-Lyang Jeng

Energy and Environment Research Laboratories, Industrial Technology Research Institute, Chutung, Hsinchu 31040, Taiwan

11:35-11:50 10186:

Study on Fluidization Behavior of Binary Mixture

Liu Baiqian Zeng Xianfang Zhang Shuai Jiao Yanmei

Thermal Energy Engineering department, University of Science and Technology Beijing, 30 Xueyuan road, Haidian district, Beijing, P. R. China, 100083

12:00-13:00

Farewell Lunch

Room 402A

10:00-12:00

Session 23 : May 27, 2009 (Wednesday)

Laminar Flames

Session-Chairs: **R.H. Chen, S. Ishizuka**

10:00-10:15 10025:

Effects of Hydrogen Addition on Cellular Instabilities of the Spherically Expanding Propane Flames

C. L. Tang, Z. H. Huang*, J. H. Wang, J. J. Zheng

State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, People's Republic of China

10:15-10:30 10036:

Measurement of Laminar Burning Velocities and Markstein Lengths for Diethyl Ether-Air Mixtures at Different Initial Pressure and Temperature

Yage Di, Zuohua Huang*, Ni Zhang, Xiaolei Gu, Bin Zheng, Zhiyuan Zhang

State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, People's Republic of China

10:30-10:45 10140:

Effect of Swirl Intensity on the Rapidly Mixed Tubular Flame Established in a 2-Inch Tubular Flame Burner

D. SHIMOKURI¹, Y. ETO¹, S. ISHIZUKA¹

¹Graduate School of Engineering, Hiroshima University, Kagamiyama, Higashi-Hiroshima, Hiroshima, 739-8527, JAPAN

10:45-11:00 10191:

Numerical Studies on Combustion Characteristics of DME and Propane in the Counterflow Non-premixed Flame

J. S. Lee¹, D. J. Lee¹, S. Y. Oh¹, H. Y. Kim¹, S. Park¹ and Y. Kim¹

¹Department of Mechanical Engineering, Korea University, Korea

11:00-11:15 10035:

A Study on Flame Propagation and Stabilization at the Bases of Laminar Lifted Diffusion Flames

Zhiliang Li and Ruey-Hung Chen*

Department of Mechanical, Materials and Aerospace Engineering, University of Central Florida Orlando, FL 32816-2450

11:15-11:30 10158:

Pressure Effect on 1-D Freely Propagating CH₄/Air Premixed Flames with Different Burning Intensity

Hai ZHANG, Qing LIU, Rong FAN, Junfu LU
Key Laboratory for Thermal Science and Power Engineering of Ministry of Education
Department of Thermal Engineering, Tsinghua University, Beijing, 100084, China

11:30-11:45 10143:

Experimental Study of CNG-Air Premixed Flames using Chemiluminescence Sensor

B.V.S. Jyoti¹, M. Muralidhar¹ and D. P. Mishra²

¹Department of Aerospace Engineering, Indian Institute of Technology Kanpur, INDIA.

²Department of Aerospace Engineering, Indian Institute of Technology Kanpur, INDIA.

12:00-13:00

Farewell Lunch

Room 402B

09:40-12:00

Session 24 : May 27, 2009 (Wednesday)

PDE and Supersonic combustion

Session-Chairs: **Gong Yu, I.S. Jeung**

09:40-09:55 10214:

Experimental Investigations of Supersonic Combustion with Elevated Kerosene

Gong Yu, Xue-Jun Fan, Jian-Guo Li,

Institute of Mechanics, Chinese Academy of Sciences, Beijing, 100080, P. R. China

09:55-10:10 10215:

Catalytic Cracking of Aviation Kerosene under Supercritical Conditions

X. J. Fan¹, F. Q. Zhong¹, G. Yu¹, J. G. Li¹ and C. J. Sung²

¹*Institute of Mechanics, Chinese Academy of Sciences, Beijing, 100190, P. R. China*

²*Department of Mechanical and Aerospace Engineering, Case Western Reserve University, Cleveland, OH 44106, USA*

10:10-10:25 10144:

Fuel Regression Rate in a Paraffin-HTPB Nitrous Oxide Hybrid Rocket

Tsong-Sheng Lee¹ and Hsin-Luen Tsai^{2*}

¹*Aerospace Science and Technology Research Center, National Cheng Kung University, Tainan, Taiwan, R.O.C.*

²*Department of Electronic Engineering, Kao Yuan University, Kaohsiung, Taiwan, R.O.C.*

10:25-10:40 10122:

Analysis and Size Determination of Cavity Flameholder in the Supersonic Combustor

E. Jeong¹, I.-S. Jeung¹, J.-Y. Choi², S. O'Byrne³ and A.F.P. Houwing⁴

¹*School of Mechanical and Aerospace Engineering, Seoul National University, Seoul, 151-744, SOUTH KOREA*

²*Department of Aerospace Engineering, Pusan National University, Busan, 609-735, SOUTH KOREA*

³*School of Aerospace and Mechanical Engineering, University of New South Wales, Australian Defence Force Academy, Canberra, ACT 2600, AUSTRALIA*

⁴*Department of Physics, Faculty of Science, Australian National University, Canberra, ACT 0200, AUSTRALIA*

10:40-10:55 10190:

Numerical Analysis of the Thermo-fluid Flow Change in a Blast Furnace Due to Distribution of the Burden

K. Yang¹, S. Choi¹ and J. Chung²

¹*Department of Mechanical Engineering, KAIST, 335 Gwahangno, Yuseong-gu, Daejeon, 305-701, KOREA*

²*Technical Research Laboratories, POSCO, Keumho-dong, Gwangyang, 545-711, KOREA*

10:55-11:10 10130:

A Numerical Modelling of Isothermal Flow in the Lower Part of a Blast Furnace During Change of Cohesive Zone

H. Jin, S. Choi*

Department of Mechanical Engineering, Korea Institute of Science and Technology, Guseong-dong, Yuseong-gu Daejeon, 305-701, KOREA

11:10-11:25 10136:

An Experimental Study on Flame Acceleration and Deflagration-to-Detonation Transition in Narrow Tubes

Y.C. Hsu, Y.C. Chao

Department of Aeronautics and Astronautics Engineering, National Cheng Kung University, Tainan 70101, Taiwan

11:25-11:40 10161:

Experimental Investigations of a Strut based Scramjet Combustor using Kerosene Fuel

V. Ramanujachari, C. Chandrasekhar, V. Satya and S. Panneerselvam

Defence Research & Development Laboratory, Hyderabad – 500 058, India

11:40-11:55 10165:

Investigations of Supersonic Combustor using Ramp Injectors

B.V.N. Charyulu*, R. Manoj, A. Rolex Ranjith, D.K. Tripathi, V. Ramanujachari and S. Panneerselvam

Defence Research and Development Laboratory, Kanchanbagh, Hyderabad – 500 058, India.

12:00-13:00

Farewell Lunch

Room 402C

09:40-12:00

Session 25 : May 27, 2009 (Wednesday)

Coal Combustion

Session-Chairs: **J. J. Ou, Sivaji Seepana**

09:40-09:55 10067:

Transformation of Organic Sulphur during Lignite Pyrolysis

Setyawati Yani and Dongke Zhang

Centre for Petroleum, Fuels and Energy, The University of Western Australia, 35 Stirling Highway, Crawley, WA 6008, Australia

09:55-10:10 10149:

Combustion of Coal under Microgravity Conditions: A Review

Mingming Zhu¹, Hai Zhang² and Dongke Zhang^{1*}

¹*Centre for Petroleum, Fuels and Energy, The University of Western Australia, 35 Stirling Highway, Crawley, WA 6008, Australia*

²*Key Laboratory for Thermal Science and Power Engineering of Ministry Education, Department of Thermal Engineering, Tsinghua University, Beijing, 100084, China*

10:10-10:25 10057:

Impact of Various Air Pollution Control Devices on Mercury Transformation in a 200 MW Coal-Fired Power Plant

Y. Tao, L. Zhang, Y. Zhuo, C. Chen, X. Xu

Key Laboratory of Thermal Science and Power Engineering of the Ministry of Education, Department of Thermal Engineering, Tsinghua University, Haidian District, Beijing, 100084, China

10:25-10:40 10155:

Influence of Calcium Oxide on the Release of Alkali Metals and Chlorine during Co-firing RDF with Coal

Xiaolin Wei*, Yang Wang, Lixin Yu

Division of Plasma and Combustion, Institute of Mechanics, Chinese Academy of Sciences, Beijing 100080, China

10:40-10:55 10058:

Evaluation of a Urea-SNCR System for NO_x Control in a Coal Fired Boiler

J. J. Ou¹, C.W. Wu¹, D. H. Wang², M. A. Cremer² and S. L. Chen³

¹*China Steel Corporation, Kaohsiung, Taiwan, 81233, ROC*

²*Reaction Engineering International, Salt Lake City, Utah, 84101, USA*

³*Pacific Rim Technologies, Pingtung, Taiwan, 90059, ROC*

10:55-11:10 10209:

Investigation on Ignition Characteristics of Oil Shale and Semi-coke

SUN Bai-zhong, WANG Qing, TAN Ping, WANG Hai-gang, QIN Hong

Northeast Dianli University, Jilin 132012, Jilin Province, China

11:10-11:25 10157:

CO₂-enriched Flue Gas Recycling for More Effective CO₂ Sequestration

Sivaji Seepana and Sreenivas Jayanti

Department of Chemical Engineering, IIT Madras, Chennai-600036, India

11:25-11:40 10189:

PM₅ Formation from Excluded Minerals under the Conditions Simulating Pulverised Coal Combustion in a Drop-tube Furnace at 1450

Ling-ngee Ngu, Dong-ke Zhang, Hongwei Wu

Department of Chemical Engineering, Curtin University of Technology, Bentley Campus, GPO Box U1987, Perth, WA 6845, Australia

12:00-13:00

Farewell Lunch

Room 402D

09:40-12:00

Session 26 : May 27, 2009 (Wednesday)

Coal Combustion

Session-Chairs: **M.H. Xu , T.P. AshokBabu**

09:40-09:55 10171:

The Formation and Properties of Particulate Matter Generated during Coal Combustion Under O₂/N₂ and O₂/CO₂ Condition

Ke ZHOU, Ming-hou XU*, Dun-xi YU, Hong YAO, Chang WEN, Lin LI

State Key Laboratory of Coal Combustion, Huazhong University of Science and Technology, Wuhan 430074, CHINA

09:55-10:10 10167:

Spontaneous Ignition of Coal Dust Layers

K. Joshi¹, A. Rangwala¹, V. Raghavan²

¹Department of Fire Protection Engineering –Worcester Polytechnic Institute, 100 Institute Road, Worcester, MA 01609

²Department of Mechanical Engineering, I.I.T. Madras, INDIA

10:10-10:25 10103:

Gasification Characteristics of Woody Biomass in the Packed Bed Reactor

R. Yoshiie¹, T. Torigoe², H. Ono¹ and I. Naruse¹

¹Department of Mechanical Science and Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, 464-8603, JAPAN

²Department of Ecological Engineering, Toyohashi University of Technology, Tempaku-cho, Toyohashi, 441-8580, JAPAN

10:25-10:40 10141:

Effect Of Denatured Spirit-Water Blends On Engine Performance And Exhaust Emissions

T.P. Ashok Babu¹, P.A.Hubballi²

¹Professor and Head of Department of Mechanical Engineering, National Institute of Technology Karnataka, Srinivasnager Post, Surathkal, DK, Pin-575025, INDIA

²Research Scholar, Department of Mechanical Engineering, National Institute of Technology Karnataka, Srinivasnagar Post, Surathkal, DK, Pin-575025, INDIA

10:40-10:55 10074:

Operational and Environmental Evaluation of Diesel Engines For De Oiled Bio Diesel Blends in CI Engines

C. Sundar Raj¹, S. Arul², S. Sendilvelan³, C.G.Saravanan⁴

¹Dr.MGR Educational and research institute,Dr.MGR University, Chennai, Professor, Department of Mechanical Engineering, Bharathiyar College of Engineering and Technology, Karaikal, Pondicherry 609 609, India

²Dr.S.Arul, Professor, Panimalar College of Engineering, Chennai,

³Dr.S.Sendhilvelan Dean (Research) Dr.MGR Educational and research institute,

⁴Professor Annamalai University, Annamalinagar

10:55-11:10 10188:

Autothermal Reforming of Methanol using Hydrogen Peroxide

Eun Sang Jung, Taegy Kim and Sejin Kwon

¹Department of Aerospace Engineering, KAIST, 373-1, Guseong-dong, Yuseong-gu, Daejeon, 305-701, Korea

11:10-11:25 10185:

Industrial Experience of Wooden Biomass Combustion

Liu Baiqian¹ Fu Youhong² Tan Peilai¹ Tong Wei¹

¹Department of thermal science and technology, University of science and technology Beijing, 30 Xueyuan Road, Haidian district, Beijing 100083, P. R. China

²Shengchang Green energy S & T co. ltd. Daxing county, Beijing, P. R. China

12:00-13:00

Farewell Lunch

Statistic Data			
Section	Paper number	Section	Paper number
Australia	7	Malaysia	1
Poland	1	Russia	4
Chinese Taipei, Taiwan	38	United Kingdom	1
United States	4	Iran	3
Canada	1	China	37
Germany	1	Hong Kong	8
India	51	Israel	1
Japan	37	Kazakhstan	1
Korea	27		
Total 223 papers			