

Jet/Rocket Fuel Kinetics Experiments and Model Development 2015

Dr. Chiping Li | April 30 – May 1, 2015 | Arlington, VA

Basic Research Innovation and Collaboration Center (BRICC)
4075 Wilson Blvd., Suite 350 | Liberty Room
Arlington, VA 22203

Day 1 – April 30, 2015

Time	Title	Speaker
7:30-7:55	Registration	
Day 1 - Problem Definitions (1) (Chair: Fokion N. Egolfopoulos)		
7:55-8:00	Announcements	
8:00-8:15	Welcome Remarks and Workshop Objectives	Fokion N. Egolfopoulos (USC) & Chiping Li (AFOSR)
8:15-8:45	Overview of Modeling Approaches	Hai Wang (Stanford University)
8:45-9:00	Jet Fuels of Interest	Tim Edwards (AFRL Wright-Patterson)
9:00-9:15	Rocket Propulsion Fuels of Interest	Matthew Billingsley (AFRL Edwards)
9:15-9:45	Thermodynamic Properties: Capabilities and Database	Tom Bruno (NIST Boulder)
9:45-10:05	BREAK	
10:05-10:35	Research Needs in Combustion – An Industry Perspective	Saadat Syed (Pratt & Whitney)
10:35-11:05	Thermodynamic and Flow Conditions of Turbine Engines of Relevance to Combustion Chemistry	Anthony Dean (GE GRC Niskayuna)
11:05-11:35	Impact of Detailed Chemical Kinetics on Rocket Combustion Dynamics	Venke Sankaran (AFRL Edwards)
11:35-11:50	Direct Numerical Simulations of Premixed <i>n</i> -Dodecane Flames in the Presence of High-Intensity Turbulence	Alexei Poludnenko (Naval Research Laboratory)
11:50-12:20	Proposed Model Development and Test Targets	Hai Wang (Stanford University)
12:20-1:30	LUNCH	
Day 1 – Problem Definitions (2) (Chair: Guillaume Blanquart)		
1:30-2:30	Open Discussion: Proposed Model Targets	Discussion lead: Matthew Billingsley (AFRL Edwards)

2:30-2:50	Local Thermodynamic and Time-flow History in Turbine Combustors	Matthias Ihme (Stanford University)
2:50-3:10	BREAK	
3:10-3:30	NTC Chemistry in Advanced Turbines	Med Colket (UTRC, Retired)
3:30-3:50	Time Scales of NTC as a Function of Fuel, Pressure, and Temperature	Matt Oehlschlaeger (Rensselaer Polytechnic Institute)
3:50-4:10	Focusing on what is Important in Low-Temperature Ignition Chemistry	Bill Green (MIT)
4:10-5:00	Open Discussion: NTC Chemistry and its Relevance to Turbine Combustors	Discussion lead: Guillaume Blanquart (Caltech)
5:00	MEETING ADJOURNED FOR THE DAY	

Day 2 – May 1, 2015		
Time	Title	Speaker
7:30-8:00	Registration	
Day 2 – Experimental Methods (1) (Chair: Hai Wang)		
8:00-8:10	Announcements	
8:10-8:30	Review of Shock Tube Experiments (1)	Ronald K. Hanson (Stanford University)
8:30-8:50	Review of Shock Tube Experiments (2)	Ken Brezinsky (University of Illinois at Chicago)
8:50-9:10	Review of Shock Tube Experiments (3)	Matt Oehlschlaeger (Rensselaer Polytechnic Institute)
9:10-9:30	Review of Shock Tube Experiments (4)	Eric Petersen (Texas A&M University)
9:30-9:50	Review of Flow Reactor Experiments (1)	Tom Bowman (Stanford University)
9:50-10:10	BREAK	
10:10-10:30	Review of Flow Reactor Experiments (2)	Fred Dryer (Princeton University)
10:30-10:50	Review of Flow Reactor Experiments (3)	Nick Cernansky (Drexel University)
10:50-11:10	Review of Flow Reactor Experiments (4)	Harsha Chelliah (University of Virginia)
11:10-11:30	Review of Jet Stirred Reactor Experiments (1)	Yiguang Ju (Princeton University)

11:30-11:50	Review of Jet Stirred Reactor Experiments (2)	Nils Hansen (Sandia National Laboratories)
11:50-12:10	Review of Synchrotron Photoionization Mass Spectrometry Experiments	Nils Hansen (Sandia National Laboratories)
12:10-1:30	LUNCH	
Day 2 – Experimental Methods (2) (Chair: Harsha Chelliah)		
1:30-1:50	Review of Laminar Flames Experiments (1)	Ed Law (Princeton University)
1:50-2:10	Review of Laminar Flames Experiments (2)	Yiguang Ju (Princeton University)
2:10-2:30	Review of Laminar Flames Experiments (3)	Fokion N. Egolfopoulos (USC)
2:30-3:00	Uncertainty Quantification	David A. Sheen (NIST)
3:00-3:30	BREAK	
3:30-4:00	Experimental Method Group Breakouts	
4:00-4:30	Group Summary	
4:30-5:00	Open Discussion and Concluding Remarks	Fokion N. Egolfopoulos (USC) & Chiping Li (AFOSR)
5:00	MEETING ADJOURNED	