

## CURRICULUM VITAE

# Shi-Hong Yan

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### SUMMARY

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B. Eng., M. Eng.

Ph. D student at the Dept. of Chemical & Fuels Engineering, University of Utah, Salt Lake City, UT

Current Grade Point Average (GPA), 3.9

Estimated Ph. D thesis defense: Summer, 2005

Author of over 15 Scientific papers, presentations and inventions

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### EDUCATION

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**University of Utah, Salt Lake City, UT** **1999 ~ present**

**Ph.D.** student in Chemical Engineering

Dissertation Topic: "Formulation & Applications of Jet Fuel Surrogates"

**Research Institute of Petroleum Processing (RIPP), Beijing, China** **1994 ~ 1996**

**M. Eng.** in Chemical Engineering

Thesis: "Reactivation of Spent Catalysts from Fluid Catalytic Cracking Units"

Honors: Dissertation passed "with Distinction".

**Shenyang Institute of Chemical Technology, Shenyang, China** **1990 ~ 1994**

**B. Eng. with Honors** in Chemical & Petroleum Engineering

Honors Thesis: "Development of Knowledge Base for Computer Aided Teaching in the Course of Unit Operation"

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### AWARDS

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John Zink Award for the outstanding academic achievement in combustion engineering, November, 1999

EXXON-RIPP Award for the excellence academic achievement in petroleum refining, March, 1997

2<sup>nd</sup> place paper, '97 Conference of National FCC Association, China, Oct. 1997

President's Fellowship, Research Institute of Petroleum Processing, 1994 –1997

Dean's Fellowship, Shenyang Institute of Chemical Technology, 1991 – 1994

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#### PROFESSIONAL EXPERIENCE

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**Research Assistant**, Combustion Research Group, Salt Lake City, UT, 1999 – Present  
Formulate and validate surrogate fuel of practical jet fuel for the Center of Simulation of Accident Fire & Explosion. The formulation of surrogate jet fuel is made possible by first analyzing parent jet fuel with GC/GC-MS, NMR, and other spectroscopy methods then characterization the reaction products from both surrogate fuel and parent fuel.

**Project Manager/Engineer, RIPP**, Beijing 1997 – 1998  
New Fluid Catalytic Cracking (FCC) catalyst design, pilot test, and manufacturing in Qilu Catalyst Factory, Shandong. FCC is the essential unit in most Chinese refineries. Refiners needs a variety of catalysts to tailoring the demand of market, e.g. maximizing diesel output, maximizing iso-olefins output.

**Research Assistant**, RIPP, Beijing, 1994 ~ 1996  
Reactivate spent FCC catalyst from refinery. 300,000 tons of spent FCC catalyst is generated annually in China, the reactivation study made possible to reuse them at a low cost.

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#### RESEARCH INTERESTS

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Fuel/Catalyst characterization

Heterogeneous catalysis: catalyst formulation, deactivation, and reactivation

Pollutant formation, characterization, and control

Effect of additives to the formation of soot related pollutants

Computational fluid dynamics

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#### TEACHING EXPERIENCE

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At the University of Utah, Salt Lake City, UT:

**Teaching Assistant** – to Prof. E. G. Eddings in “Fluid Mechanics.” CHFE3353 ■ 2002  
Hosted problem session, met with students upon request, and graded all written work and maintained the course web site.

**Teaching Assistant** – to Prof. J. V. Fletcher in “Process Design I” CHFE4253 ■ 2001  
Hosted problem session, met with students upon request, and graded all written work and mentored students in the application of ChemCad software.

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#### PREFERRED PUBLICATIONS AND PRESENTATIONS

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**S. Yan**, R. J. Pugmire, A.F. Sarofim et al, "Study of Evolution of Soots from Various Fuels", Energy & Fuels, to be published, 2005

E. G. Eddings, **S. Yan**, W. Ciro, A. F. Sarofim, "Formulation of A Surrogate for the Simulation of Jet Fuel Pool Fire", Comb. Sci. & Tech, 2005, 177, 1

**S. Yan**, R. J. Pugmire, A.F. Sarofim et al, "A Study of Evolution of Soots from Various Fuels", 30<sup>th</sup> Int'l Symp. on Combustion, accepted, Chicago, July 27, 2004

R. J. Pugmire, R. E. Winans; **S. Yan** et al, "Characterization of free radicals in multi-source particulate matter" 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004.

**S. Yan**, Y. Jiang, R.J. Pugmire, et al, "Characterization of Free Radicals in Multi-Source Particle Matter", in review, 2004

A. Violi, **S. Yan**, E. G. Eddings, A. F. Sarofim, "Experimental formulation and kinetic model for JP-8 surrogate mixtures". Combust. Sci. & Tech., 2002. 174(11-12):399-417.

**S. Yan**, W. Ciro, E.G Eddings, and A. F. Sarofim, 2003. "Experimental Study of Burning Rates in Jet Fuel Pool Fires," 3<sup>rd</sup> Joint Meeting of U.S. Sections of the Combustion Institute, Chicago, IL, March 16-19, 2003.

**S. Yan.**, Zhi-Ru, M., Eddings, E. and Sarofim, A. 2003. "A Study of Fuel Behavior and its Impact in Jet Fuel Pool Fires," 17<sup>th</sup> ACERC Annual Conference, Salt Lake City, UT. February 20-21, 2003

C. Li, **S. Yan** et al., "Effect of Vanadium on light olefins selectivity", Stud. Surf. Sci. Catal. 134 (2001) 133~139.

**S. Yan**, C. Li, Z. Chen "Reactivation of spent FCC catalyst", Prepr. -Am. Chem. Soc., Div. Petr. Chem., 43(2), 320-323, 1998

**S. Yan**, R. J. Pugmire, A.F. Sarofim et al, "Study of Evolution of Soots from Jet Fuels And Surrogates", The 9th International Congress on Combustion By-Product and their Health Effects June 12-15, 2005, Tucson, AZ

R. J. Pugmire, **S. Yan**, Y. Jiang, et al, "Characterization of Free Radicals in Multi-Source Particle Matter", The 9th International Congress on Combustion By-Product and their Health Effects June 12-15, 2005, Tucson, AZ

N. D. Marsh, I. Nacho, **S. Yan**, et al, "PAH in Jet Fuel Soot: JP-8 vs. a surrogate fuel and individual compounds", 19th International Symposium on Polycyclic Aromatic Compounds, September 21-25, 2003, Amsterdam, The Netherlands

E.G. Eddings, **S. Yan**, W. Ciro and A.F. Sarofim. 2002 "Formulation of a Surrogate for the Simulation of Jet Fuel Pool Fires," 29<sup>th</sup> Symposium (Int) on Combustion, Sapporo, Japan, July 21-26, 2002

R.J. Pugmire, **S. Yan.**, A. F. Sarofim et al, "Soot Formation Process" 17th ACERC Annual Conference, Salt Lake City, UT. February 20-21, 2003

**S. Yan.**, E.G. Eddings, A. F. Sarofim et al, "Progress in the Formulation of JP-8 Surrogate for Pool Fire Simulation" 16th ACERC Annual Conference, Provo, UT. February 20-21, 2002

A. Violi, **S. Yan**, E.G. Eddings, et al, "Experimental Formulation and Kinetic Model for JP-8 Surrogate Mixtures," 2nd Mediterranean Comb. Symp., Sharm El-Sheikh, Egypt, Jan. 6-11, 2002

**S. Yan**, C. Li, Z. Chen "A Novel Method in Reactivating Spent FCC Catalyst", '97 Annual Conf. of National FCC Assoc., Oct.,1997, Luoyang, China

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#### PATENTS

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**S. Yan**, Z. Chen, C. Li, et al, "Reactivation process for cracking catalysts containing molecular sieves ", CN 11917122, 1998

**S. Yan**, Z. Chen, C. Li, "Method of modifying Kaolin ", CN 1210031, 1999

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#### PROFESSIONAL SOCIETIES MEMBERSHIPS

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American Chemical Society  
The Combustion Institute

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#### TECHNICAL SKILLS

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Installing, operating, and maintaining PC Windows and experiences in operating SUN® Solaris computers;

Experience in using Varian® Inova 500MHz NMR spectrometer and Varian® NMR software to interpret results;

Experience in using HP 5890/6890 GC with/without HP 6790 mass spectrometer;

Experience in using Chemstation® software for interpretation GC/GC-MS results;

Actively programming in Matlab®. Good command of Visual C++, and Visual Basic/Script.

Experienced in using chemical engineering simulation software, such as ChemCad® and Aspen®

Experienced in using Fluent®, FDS programs (Computational Fluid Dynamics); LabView® and OPTO(data acquisition).

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#### LANGUAGES

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**Chinese** – native language, **English** – speak fluently and read/write/communicate with high proficiency; **Japanese** – speak and read with basic competence.

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#### REFERENCES

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***Adel F. Sarofim***

Presidential Prof.  
Member of National Academy of Engineering  
Dept. of Chemical & Fuels Engineering  
Rm. 109 Kennecott Research Building  
University of Utah  
Salt Lake City, Utah 84112  
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***Ronald J. Pugmire***

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Dept. of Chemical & Fuels Engineering  
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***Eric G. Eddings***

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***Charles L. Mayne***

Assoc. Prof., Dept. NMR Lab Manager  
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Rm. B115, Henry Eyring Building  
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