Gong Yan

Department: School of Resources and Environmental Engineering

Professional field: Coal Gasification

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Profile

Associate professor Gong Yan is mainly engaged in the basic research and gasification technology development of furnace visualization and gasification process enhancement in the direction of entrained flow gasification.

Research Field

In view of the complex reaction and heat and mass transfer process under the conditions of high temperature, high pressure and turbulent multiphase flow, the main research directions are as follows:

1. Flame visualization of furnace combustion / gasification process
2. Furnace particle behavior and reaction mechanism
3. Reaction mechanism of impinging flame
4. Refractory erosion and corrosion
5. New technology of gasification and combustion, etc.

Research results and selected published papers

Published papers:

(1) Yan Gong; Qinghua Guo; Huiwen Zhu; Guangsuo Yu*. Refractory Failure in Entrained-Flow Gasifier: Investigation of Partitioned Erosion Characteristics in an Industrial Opposed Multi-Burner Gasifier. Chemical Engineering Science, 2019, 210: doi:10.1016/j.ces.2019.115227.

(2) Yan Gong, Qing Zhang, Qinghua Guo, Zhicun Xue, Fuchen Wang, Guangsuo Yu*. Vision-Based Investigation on the Ash/Slag Particle Deposition Characteristics in an Impinging Entrained-Flow Gasifier. Applied Energy, 2017, 206: 1184-1193.

(3) Yan Gong, Qing Zhang, Huiwen Zhu, Qinghua Guo, Guangsuo Yu*. Refractory Failure in Entrained-flow Gasifier: Vision-based Macrostructure Investigation in a Bench-scale OMB Gasifier. Applied Energy, 2017, 205: 1091-1099.

(4) Chonghe Hu#, Yan Gong#, Xudong Song, Qinghua Guo, Guangsuo Yu*. Investigations of Chemiluminescence Characteristics in CH4/O2 Jet Diffusion Flames Impinging on the Flat Plate. Combustion Science and Technology, 2017, 189(12): 2195-2208.

(5) Yan Gong, Chonghe Hu, Qinghua Guo, Xiaoxiang Wu, Guangsuo Yu*. Chemiluminescence and Structure Characteristics in CH4/O2 Coflow Jet Diffusion Flames. Energy Procedia, 2017, 142: 1059-1064.

(6) Yan Gong, Guangsuo Yu*, Qinghua Guo, Yifei Wang, Xueli Chen, Fuchen Wang. Progress on Opposed Multi-Burner (OMB) Coal-Water Slurry Gasification Technology and Its Industrial Applications. Energy Procedia, 2017, 142: 1089-1094.

(7) Yan Gong, Guangsuo Yu*, Qinghua Guo, Zhijie Zhou, Fuchen Wang, Yongdi Liu. Experimental Study of the Particle Deposition Characteristics in an Entrained Flow Gasifier. Chemical Engineering Science, 2015, 138: 291-302.

(8) Yan Gong, Guangsuo Yu*, Qinghua Guo, Zhijie Zhou, Fuchen Wang, Yongdi Liu. Experimental Study on Particle Characteristics in an Opposed Multi-burner Gasifier. Chemical Engineering Science, 2014, 117: 93-106.

(9) Yan Gong, Qinghua Guo, Jie Zhang, Puxing Fan, Qinfeng Liang, Guangsuo Yu*. Impinging Flame Characteristics in an Opposed Multiburner Gasifier. Industrial & Engineering Chemistry Research, 2013, 52(8):3007-3018.

(10) Yan Gong, Qinghua Guo, Qinfeng Liang, Jie Zhang, Guangsuo Yu*. Three-Dimensional Temperature Distribution of Impinging Flames in an Opposed Multiburner Gasifier. Industrial & Engineering Chemistry Research, 2012, 51(22):7828-7837.

(11) Qinghua Guo*, Yuchen Huang, Yan Gong*, Juntao Wei, Guangsuo Yu. A study on high‐temperature co‐gasification reactivity characteristics and kinetics analysis of Hami coal and its liquefaction residue. Asia-Pacific Journal of Chemical Engineering, 2019, DOI: 10.1002/apj.2376

(12) Lei He, Qinghua Guo, Yan Gong*, Fuchen Wang, Guangsuo Yu*. Investigation of OH* chemiluminescence and heat release in laminar methane-oxygen co-flow diffusion flames. Combustion and Flame, 2019, 201: 12-22.

(13) Zhicun Xue, Qinghua Guo, Yan Gong*, Xiaoxiang Wu, Fuchen Wang, Guangsuo Yu*. Detailed deposition characteristics around burner plane in an impinging entrained-flow coal gasifier. Chemical Engineering Science, 2019, 198: 85-97.

(14) Zhicun Xue, Qinghua Guo, Yan Gong*, Yifei Wang, Guangsuo Yu*. In-situ atomization and flame characteristics of coal water slurry in an impinging entrained-flow gasifier. Chemical Engineering Science, 2018, 190: 248-259.

(15) Qing Zhang, Yan Gong*, Qinghua Guo, Zhicun Xue, Fuchen Wang, Guangsuo Yu*. Experimental Study of Particle Evolution Characteristics in an Opposed Multi-burner Gasifier. Chemical Engineering Science, 2017, 162: 104-119.

(16) Lu Ding, Yan Gong*, Yifei Wang, Fuchen Wang, Guangsuo Yu*. Characterisation of the Morphological Changes and Interactions in Char, Slag and Ash during CO2 Gasification of Rice Straw and Lignite. Applied Energy, 2017, 195: 713-724.

(17) Qing Zhang, Xudong Song, Qinghua Guo, Yan Gong*, Chonghe Hu, Guangsuo Yu*. Experimental Study on the Atomization and Chemiluminescence Characteristics of Ethanol Flame. Journal of Spectroscopy, 2017, 1: 1-8.

(18) 何磊 , 龚岩 *, 郭庆华 , 胡翀赫 , 于广锁 *. 甲烷 - 氧气层流同轴射流扩散火焰 OH* 自由基的数值研究 . 光谱学与光谱分析 , 2018, 38(3): 685-691。

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Issued Patents:

(1) 重建炉膛内火焰三维结构的采集方法，2019.6.4，中国，ZL201510872482.4

(2) 用于水煤浆气化的等离子体喷嘴及气化炉，2018.6.15，中国，ZL201721651205.1

(3) 用于气流床气化的辐射废锅，2018.10.19，中国，ZL201820215738.3

(4) 单颗粒反应测量装置，2018.6.15，中国，ZL201721652562.X

(5) 重建炉膛内火焰三维结构的采集装置及采集方法，2016.8.24，中国，ZL201410199208.0

(6) 基于线阵相机的旋转扫描成像装置，2015.8.22，中国，ZL201520212117.6

(7) 火焰图像采集及分析装置，2017.2.15，中国，ZL201620934339.3

(8) 火焰内部光谱采集装置，2017.4.26，中国，ZL201620934315.8

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