

Research activity on combustion of coal/biomass/wastes

Publications (1991 - present)

1. Jun Han, Tadaaki Shimizu, Minami Wataru, Heejoon Kim, Guanghui Wang, "Polypropylene Combustion in a Fluidized Bed Combustor", *Energy Sources, Part A*, (in press)
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3. Jun Han Heejoon Kim, Sunyong Cho, Tadaaki Shimizu, "Fluidized bed combustion of some woody fuels", *Energy Sources, Part A*, Vol. 30, No.19, pp.1820 - 1829, 2008 doi: 10.1080/15567030701268500
4. Jun Han, Heejoon Kim,, Wataru Minami, Tadaaki Shimizu, Guanghui Wang, "The Effect of the Particle Size of Alumina Sand on the Combustion and Emission Behavior of Cedar Pellets in a Fluidized Bed Combustor", *Bioresource Technology*, Vol.99, 3782-3786, 2008 doi: 10.1016/j.biortech.2007.07.010
5. I Nyoman Suprpta Winaya, Tadaaki Shimizu, Daisuke Yamada, "A new method to evaluate horizontal solid dispersion in a bubbling fluidized bed", *Powder Technology*, Vol.178, No.3, pp. 175-178, 2007 doi: 10.1016/j.powtec.2007.05.005
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9. Tadaaki Shimizu, Hans-Jürgen Franke, Satoko Hori, Jun Asazuma, Masahiro Iwamoto, Toshio Shimoda, Syunji Ueno, "Capacitance effect of porous solids - an approach to improve fluidized bed conversion processes of high-volatile fuels", *Chemical Engineering Science*, Vol.62, No.18 - 20, pp. 5549 - 5553, 2007, doi:10.1016/j.ces.2006.12.015
10. Tadaaki Shimizu, Masanori Toyono, Hajime Ohsawa, "Emissions of NO_x and N₂O during co-combustion of dried sewage sludge with coal in a bubbling fluidized bed combustor", *Fuel*, Vol. 86, No.7-8, pp. 957-964, 2007 doi:10.1016/j.fuel.2006.10.001
11. Jaakko Saastamoinen*, Tadaaki Shimizu, "A model of limestone attrition and SO₂ capture in a large scale pressurised fluidised bed combustor", *Chemical Engineering Science*, Vol.62, No.1 - 2, pp. 574 - 583, 2007, doi:10.1016/j.ces.2006.09.022 *:VTT Processes, Finland
12. Tadaaki Shimizu, Jun Han*, Sunyong Choi*, Laehyun Kim**, Heejoon Kim*, "Fluidized bed combustion characteristic of cedar pellet by using an alternative bed material", *Energy and Fuels*, Vol.20, No.6, pp. 2737 - 2742, 2006 doi: 10.1021/ef0601723 *: Toyohashi University of Technology, **: Seoul National University of Technology
13. Tadaaki Shimizu, Hans-Jürgen Franke, Satoko Hori, Jun Asazuma, Masahiro Iwamoto, Toshio Shimoda, Syunji Ueno, "Capacitance effect of porous solids - an approach to improve fluidized bed conversion processes of high-volatile fuels", *presented at 19th International Symposium on Chemical Reaction Engineering* (Potsdam, Germany, Sep.3 – 6, 2006), 2006
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15. I Nyoman Suprpta Winaya, Tadaaki Shimizu, "Reduction of VM evolution rate from a plastic pellet during bubbling fluidized bed pyrolysis by using porous bed material", *Proc. 19th International Conference on Fluidized Bed Combustion* (Vienna, Austria, May 21-24, 2006), Paper No.017 (CD-ROM), 2006

16. Tadaaki Shimizu, Hiroaki Tominaga*, “A model of char capture by molten slag surface under high-temperature gasification conditions”, *Fuel*, Vol.85, No.2, pp.170-178, 2006 (*:DELIGHT Co., Ltd.)
17. Tadaaki Shimizu, Takumi Nemoto, Hotaka Tsuboi, Toshio Shimoda*, Syunji Ueno*, “Rice husk combustion in a BFBC using porous bed material”, *Proc. 18th International Conference on Fluidized Bed Combustion* (Toronto, Canada, May 22 - 25, 2005), paper No. FBC2005-78028 (on CD-ROM), 2005 (*: Concurrent Co.Ltd.)
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22. Tadaaki Shimizu, Shinichi Sakuno*, Nobuhiro Misawa*, Nobuyuki Suzuki*, Hachiro Ueda*, Hiroshi Sasatsu*, Hideki Gotou*, “Attrition and fragmentation of limestone in a 71MWe pressurized fluidized bed combustor”, *VGB-Workshop, “Operating Experience with Fluidised Bed Firing Systems 2004”* (Berlin, Germany, September, 22-24, 2004), Vortrag17 (on CD-ROM), 2004 (*: J-Power, Electric Power Development Co., Ltd.)
23. Tadaaki Shimizu, Toshiaki Takahashi, Masaru Tonsho, Makoto Inagaki, “Formation of NO_x during char combustion in a fixed bed of catalyst under reduced and elevated pressure conditions”, *21st Annual International Pittsburgh Coal Conference* (Osaka, September, 13-17, 2004), Paper number #32 (CD-ROM), 2004
24. Tadaaki Shimizu*, Hideyuki Miura, Kouichi Watanabe, Masaru Tonsho, Makoto Inagaki, Akira Okawa, “A kinetic study of CaSO₄ decomposition under fluidized bed combustion conditions”, *21st Annual International Pittsburgh Coal Conference* (Osaka, September, 13-17, 2004), Paper number #335 (CD-ROM), 2004
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- Masato Tanaka, "In-situ hydrocarbon capture and reduction of emissions of dioxins by porous bed material under fluidized bed incineration conditions", *The 17th International Conference on Fluidized Bed Combustion* (Jacksonville, FL, USA, May 18-21, 2003), paper No.031 (on CD-ROM), 2003
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Other Academic Activities

Activity to organize conferences and symposia

1. Chairperson of organizing committee of “The 1st SCEJ Symposium on Fluidization” (Tokyo, 1995), Society of Chemical Engineers, Japan (SCEJ)
2. Chairperson of organizing committee of “The 2nd SCEJ Symposium on Fluidization” (Tokyo, 1996), Society of Chemical Engineers, Japan (SCEJ)
3. Session organizer of “The 3rd SCEJ Symposium on Fluidization” (Nagoya, 1997)
4. Session organizer of “The 4th SCEJ Symposium on Fluidization” (Sapporo, 1998)
5. Session organizer of “The 5th SCEJ Symposium on Fluidization” (Tsukuba, 1999)
6. Session organizer of “The 6th SCEJ Symposium on Fluidization” (Maebashi, 2000)
7. Session organizer of “The 7th SCEJ Symposium on Fluidization” (Awajishima, 2001)
8. Session organizer of “The 8th SCEJ Symposium on Fluidization” (Kitakyusyu, 2002)
9. Session organizer of “5th China-Japan Fluidization Symposium & The 9th SCEJ Symposium on Fluidization” (Gifu, Japan, 2003)
10. Combustion session coordinator of “20th Int. Pittsburgh Coal Conf.” (Pittsburgh, USA, 2003)
11. Chairperson of organizing committee of “The 10th SCEJ Symposium on Fluidization” (Tokyo, 2004)
12. Combustion session coordinator of “21st Int. Pittsburgh Coal Conf.” (Osaka, Japan, 2004)
13. Organizing committee member and program committee member of “International Conference on Coal Science and Technology 2005” (Ginowan, Okinawa, Japan)
14. Steering committee member of “ISCRE20 20th Int. Symp. on Chemical Reaction Engineering” (Kyoto, Japan)

Curriculum Vitae

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1988 - 2003 Research associate, Department of Chemical Engineering, Niigata University
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