

<<第20届国际化订燃烧会议论文集(I)>>

图书基本信息

书名：<<第20届国际化订燃烧会议论文集(I、II) 英文版>>

13位ISBN编号：9787302201465

10位ISBN编号：7302201463

出版时间：1970-1

出版时间：清华大学出版社

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## 前言

The Proceedings of the 20th International Conference on Fluidized Bed Combustion ( FBC ) collect 9 plenary lectures and 175 peerreviewed technical papers presented in the conference held in Xi'an China in May 18-21, 2009. The conference was the 20th conference in a series, covering the latest fundamental research results, as well as the application experience from pilot plants, demonstrations and industrial units regarding to the FBC science and technology. It was co-hosted by Tsinghua University, Southeast University, Zhejiang University, China Electricity Council and Chinese Machinery Industry Federation. A particular feature of the proceedings is the balance between the papers submitted by experts from industry and the papers submitted by academic researchers, aiming to bring academic knowledge to application as well as to define new areas for research. The authors of the proceedings are the most active researchers, technology developers, experienced and representative facility operators and manufacturers. They presented the latest research results, state-of-the-art development and projects, and the useful experience.

## 内容概要

《第20届国际化订燃烧会议论文集(英文版)(套装共2册)》内容简介：The Proceedings of the 20th International Conference on Fluidized Bed Combustion ( FBC ) collect 9 plenary lectures and 175 peer reviewed technical papers presented in the conference held in Xi'an China in May 18-21, 2009. The conference was the 20th conference in a series, covering the latest fundamental research results, as well as the application experience from pilot plants, demonstrations and industrial units regarding to the FBC science and technology. It was co-hosted by Tsinghua University, Southeast University, Zhejiang University, China Electricity Council and Chinese Machinery Industry Federation.

书籍目录

LATEST DEVELOPMENT OF CFB BOILERS IN CHINAGASIFICATION OF BIOMASS IN FLUIDISED BED: REVIEW OF MODELLINGPOTENTIALS OF BIOMASS CO-COMBUSTION IN COAL-FIRED BOILERSFormation and Reduction of Pollutants in CFBC: From Heavy Metals, Particulates, Alkali, NOx, N2O, SOx, HC1LATEST EVOLUTION OF OXY-FUEL COMBUSTION TECHNOLOGY IN CIRCULATING FLUIDIZED BEDFOSTER WHEELER'S SOLUTIONS FOR LARGE SCALE CFB BOILER TECHNOLOGY: FEATURES AND OPERATIONAL PERFORMANCE OF LAGISZA 460 MWe CFB BOILERFLUIDIZED COMBUSTION OF LIQUID FUELS: PIONEERING WORKS, PAST APPLICATIONS, TODAY'S KNOWLEDGE AND OPPORTUNITIESDIRECT NUMERICAL SIMULATION OF VERTICAL PARTICULATE CHANNEL FLOW IN THE TURBULENT REGIMEGASIFICATION IN FLUIDIZED BEDS - PRESENT STATUS & DESIGN CFB Boiler Technology, Operation and DesignRESEARCH AND DEVELOPMENT OF LARGE CAPACITY CFB BOILERS IN TPRIEXPERIENCE FROM THE 300 MWe CFB DEMONSTRATION PLANT IN CHINAPROJECT MAXAU - FIRST APPLICATION OF HYBRID CFB TECHNOLOGY BY AUSTRIAN ENERGY & ENVIRONMENT1300 ° F 800 MWe USC CFB BOILER DESIGN STUDYSTRUCTURE AND PERFORMANCE OF A 600MWe SUPERCRITICAL CFB BOILER WITH WATER COOL.ED PANELSSTARTUP, COMMISSIONING AND OPERATION OF FENYI 100MW CFB BOILERDESIGN AND OPERATION OF LARGE SIZE CIRCULATING FLUIDIZED BED BOILER FIRED SLURRY AND GANGUEPERFORMANCE IMPROVEMENT OF 235 MWe AND 260 MWe CIRCULATING FLUIDIZEI3 BED BOILERSB&W IR-CFB: OPERATING EXPERIENCE AND NEW DEVELOPMENTSNOx EMISSION REDUCTION BY THE OPTIMIZATION OF THE PRIMARY AIR DISTRIBUTION IN THE 235MWe CFB BOILERHEAT TRANSFER COEFFICIENT DISTRIBUTION IN THE FURNACE OF A 300MWe CFB BOILERCALCULATION AND ANALYSIS OF HEAT TRANSFER COEFFICIENTS IN A CIRCULATING FLUIDIZED BED BOILER FURNACERESEARCH ON THE HYDRAULIC CHARACTERISTICS OF A 600MW SUPERCRITICAL PRESSURE CFB BOILERSTUDY OF NOX EMISSION CHARACTERISTICS OF A 1025t/h COAL-FIRED CIRCULATING FLUIDIZED BED BOILERMERCURY EMISSION AND REMOVAL OF A 135 MW CFB UTILITY BOILERNOVEL CFB BOILER TECHNOLOGY WITH RECONSTRUCTION OF ITS FLUIDIZATION STATEDEVELOPMENT OF FLEXI-BURNTM CFB POWER PLANT TO MEET THE CHALLENGE OF CLIMATE CHANGEDESIGN AND APPLICATION OF NOVEL HORIZONTAL CIRCULATING FLUIDIZED BED BOILERDESIGN AND OPERATION OF CFB BOILERS WITH LOW BED INVENTORYOPERATIONAL STATUS OF 135MWe CFB BOILERS IN CHINA IN DEVELOPPING A BENCH-SCALE CIRCULATING FLUIDIZED BED COMBUSTOR TO BURN HIGH ASH BRAZILIAN COAL-DOLOMITE MIXTURESINDUSTRIAL APPLICATION STUDY ON NEW-TYPE MIXED-FLOW FLUIDIZED BED BOTTOM ASH COOLEROPERATION EXPERIENCE AND PERFORMANCE OF THE FIRST 300MWe CFB BOILER DEVELOPED BY DBC IN CHINAOPERATIONAL STATUS OF 300MWe CFB BOILER IN CHINAADVANCED REFRACTORY AND ANTI-WEARING TECHNOLOGY OF CYCLONE SEPARATOR IN CFB BOILERABRASION-RESISTANT TECHNOLOGY AND ITS PROSPECT FOR CFB BOILERSCOMPARION OF MERCURY EMISSIONS BETWEEN CIRCULATING FLUIDIZED BED BOILERAND PULVERIZED COAL BOILERCO-COMBI JSTION OF REFI JSE DERIVED FI JEL WITH ANTHRACITES IN A CFB BOILERCOMRI JSTION OF POI II, TRY-DERIVED FI JEI, IN A CFBCTHERMAL EFFECTS BY FIRING OIL SHALE FUEL IN CFB BOILERSECONOMICAL COMPORISON PC AND CFB BOILERS FOR RETROFIT AND NEW POWER PLANTS IN RUSSIACHARACTERIZATION OF FINE POWDERSVELOCITY OF COMPLETE FLUIDIZATION OF A POLYDISPERSE MIXTURE OF VARIOUS FUELSEFFECTS OF TEMPERATURE AND PARTICLE SIZE ON MINIMUM FLUIDIZATION AND TRANSPORT VELOCITIES IN A DUAL FLUIDIZED BEDFLUIDIZATION CHARACTERISTICS OF STALK-SHAPED BIOMASS IN BINARY PARTICLE SYSTEMBOTTOM ZONE FLOW PROPERTIES OF A

SQUARE CIRCULATING FLUIDIZED BED WITH AIR STAGING EXPERIMENTAL STUDY ON PARTICLE FEEDING AND MIXING IN THE BOTTOM ZONE OF A CIRCULATING FLUIDIZED BED AN EXPERIMENTAL INVESTIGATION INTO THE FRAGMENTATION OF COAL PARTICLES IN A FLUIDIZED-BED COMBUSTOR AXIAL AND RADIAL SOLIDS HOLDUP MODELING OF CIRCULATING FLUIDIZED BED RISERS RESEARCH ON FLOW NON-UNIFORMITY IN MAIN CIRCULATION LOOP OF A CFB BOILER WITH MULTIPLE CYCLONES FLOW REGIME STUDY IN A CIRCULATING FLUIDIZED BED RISER WITH AN ABRUPT EXIT: FULLY DEVELOPED FLOW IN CFB RISER HEAT TRANSFER AT A LONG ELECTRICALLY-SIMULATED WATER WALL IN A CIRCULATING FLUIDIZED BED DESIGN AND OPERATION OF EXPERIMENTAL SYSTEM FOR STUDYING HEAT TRANSFER IN A SMOOTH TUBE AT NEAR- AND SUPER CRITICAL PRESSURE EXPERIMENTAL AND MODELING INVESTIGATION OF LIGNITE DRYING IN A FLUIDIZED BED DRYER EXPERIMENTAL RESEARCH ON GAS-SOLID FLOW IN AN EXTERNAL HEAT EXCHANGER WITH DOT IRI, E fit ITI, ET ST THE EXPERIMENTAL STUDY ON HEAT TRANSFER CHARACTERISTICS OF THE EXTERNAL HEAT EXCHANGER EXPERIMENTAL STUDY ON MASS AND HEAT TRANSFER CHARACTERISTICS IN A HORIZONTAL CIRCULATING DIVISIONAL FLUIDIZED BED EXPERIMENTAL STUDY OF GAS SOLID FLOW CHARACTERISTICS IN CYCLONE INLET DUCTS OF A 300MWE CFB BOILER EXPERIMENTAL RESEARCH ON GAS-SOLID FLOW IN A SQUARE CYCLONE SEPARATOR WITH DOUBLE INLETS GAS-PHASE COMBUSTION IN THE FREEBOARD OF A FLUIDIZED BED-FREEBOARD CHARACTERIZATION CHARACTERISTICS OF PYROLYTIC TOPPING IN FLUIDIZED BED FOR DIFFERENT VOLATILE COALS FLUIDIZED BED COMBUSTION OF TWO SPECIES OF ENERGY CROPS PREDICTION OF AGGLOMERATION, FOULING, AND CORROSION TENDENCY OF FUELS IN CFB CO-COMBUSTION ENVIRONMENTAL IMPACT OF ESTONIAN OIL SHALE CFB FIRING STUDY ON COMBUSTION CHARACTERISTICS OF LIGNITE IN A CFB BOILER STUDY OF HEAVY METALS CONDENSATION BY CONSIDERING VARIANT CONDITIONS OF INCINERATOR COOLING ZONE DUAL-FUEL FLUIDIZED BED COMBUSTOR PROTOTYPE FOR RESIDENTIAL HEATING: STEADY-STATE AND DYNAMIC BEHAVIOREXPERIMENTAL STUDY ON GAS-SOLID FLOW CHARACTERISTICS IN A CFB RISER OF 54m IN HEIGHT STUDY OF AIR JET PENETRATION IN A FLUIDIZED BED SOLIDS MIXING IN THE BOTTOM ZONE OF FLUIDIZED BED EFFECT OF RISER GEOMETRY STRUCTURE ON LOCAL FLOW PATTERN IN A RECTANGULAR CIRCULATING FLUIDIZED BED EXPERIMENTAL STUDY ON COAL FEEDING PROPERTY OF 600MW CFB BOILER THE HEAT RELEASE RATIO AND PERFORMANCE TEST AT A SMALL-SCALE RDF-5 BUBBLING FLUIDIZED BED BOILER INTEGRATED USE OF FLUIDIZED BED TECHNOLOGY FOR OIL PRODUCTION FROM OIL SHALE THE INFLUENCE OF SORBENT PROPERTIES AND REACTION CONDITIONS ON ATTRITION OF LIMESTONE BY IMPACT LOADING IN FLUIDIZED BEDS CHARACTERISTICS OF A MODIFIED BELL JAR NOZZLE DESIGNED FOR CFB BOILERS HEAT BALANCE ANALYSIS OF BAIMA'S 300 MWe CFB BOILER IN CHINA CO<sub>2</sub> Capture and Chemical Looping DIFFERENT METHODS OF MANUFACTURING FE-BASED OXYGEN CARRIER PARTICLES FOR REFORMING VIA CHEMICAL LOOPING, AND THEIR EFFECT ON PERFORMANCE KINETICS OF OXIDATION OF A REDUCED FORM OF THE Cu-BASED OXYGEN-CARRIER FOR USE IN CHEMICAL-LOOPING COMBUSTION REDUCTION KINETICS OF A CaSO<sub>4</sub> BASED OXYGEN CARRIER FOR CHEMICAL-LOOPING COMBUSTION INVESTIGATION OF COAL FUELED CHEMICAL LOOPING COMBUSTION USING Fe<sub>3</sub>O<sub>4</sub> AS OXYGEN CARRIER...  
... Gasification Modling and Simulation Sustainable Fuels-Combustion and New Concept

## 章节摘录

插图：Recently, clean utilization of lowrank fuel is a key issue in energy and thermal power system due to unstable prices of fossil fuels and environmental problems. Biomass utilization is a very promising technology because it is carbon neutral and one of the most abundant resources in the world. Among various ways of using biomass as energy, gasification technology is known to be a very effective process because syngas from the gasification process can be applied to polygeneration: combustion, power generation, synthetic fuel and chemical production. Korea Institute of Industrial Technology (KITECH) has been focused on the clean use of low-quality fuels such as coal, waste, and biomass and we launched an extensive research project on biomass gasification including gas cleaning and biomass-to-liquid (BTL) with F-T process. For biomass gasification, we are developing a dual bed gasification system consisting of a bubbling fluidized bed gasifier and a circulating fluidized bed combustor. Our goal is to develop a gasification process which satisfies the requirement of F-T process which needs high contents of hydrogen with less impurity such as sulfuric compounds, tar and particulate matters. There have been extensive researches on biomass gasification with fluidized bed gasifier and various gasifying medium. Generally, high temperature gasification with steam or oxygen has been used for getting hydrogen-rich syngas. To maximize gasification and tar removing efficiency, a combined system which has low velocity fluidized bed & high velocity pneumatic riser (Xu et al., 2006) is known to have an excellent performance (Hofbauer et al., 1995; Fang et al., 1998; Murakami and Xu, 2006). A dual fluidized bed (DFB) reactor has two fluidized beds: gasifier (bubble fluidized beds) and combustor (circulating fluidized beds) which produces syngas and combustion gas respectively. This combined system has many advantages, such as cold gas efficiency, tar removing performance, and gas composition. By separating gasification and combustion processes, we can produce middle-caloric-value syngas without nitrogen dilution and less carbon dioxide. By adding steam or oxygen to the gasifier, we can control the caloric value of syngas. In this study, we investigated hydrodynamics of DFB reactor for developing an auto-thermal biomass gasifier.

编辑推荐

《第20届国际化订燃烧会议论文集(英文版)(套装共2册)》由清华大学出版社出版。

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