

# Numerical Simulation of Pulverized Coal Combustion in a Power Boiler Furnace

A. S. Askarova<sup>a</sup>, V. E. Messerle<sup>b</sup>, A. B. Ustimenko<sup>a</sup>, S. A. Bolegenova<sup>a</sup>, V. Yu. Maximov<sup>a</sup>, and Z. Kh. Gabitova<sup>a</sup>

<sup>a</sup>*Research Institute of Experimental and Theoretical Physics, Al-Farabi Kazakh National University, Almaty, Kazakhstan*

<sup>b</sup>*Kutateladze Institute of Thermal Physics, Siberian Branch, Russian Academy of Sciences, Novosibirsk, Russia*  
e\_mail: [ust@physics.kz](mailto:ust@physics.kz)

**Abstract**—Investigation of the combustion of the coal\_dust flame in a BKZ\_75 boiler furnace of the Shakhtinskaya thermal power station (TPS) is carried out using three\_dimensional simulation. The distributions of the full velocity vector and the temperature and components concentration profiles, including hazardous pollutants, in the furnace volume and at its outlet are determined. It is shown that swirling flows of the air fuel mixture that enters the furnace through contradirectional burners form a volume vortex flow in the central section. The maximum concentrations of combustion products in the area of arrangement of burner devices are observed in the cross section of the body of the flame. The concentrations of hazardous pollutants at the furnace outlet are less than the admissible concentrations accepted for the TPS.

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