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TRANSPORT PHENOMENA & FLUID MECHANICS

偏心搅拌槽流场内三维LDV测量的实验研究

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摘要：The spatial structure of the velocity field in a stirred vessel with water has been measured and analyzed using the laser Doppler velocimeter technique, with the immersing depth and agitation speed of the impeller remaining approximately constant. The experimental results were provided such as the mean velocity field, fluctuating velocities, turbulent kinetic energy, Reynolds shear stress and time series of the velocity in the stirred tank. These results probably provided the valuable basis to further optimize and enlarge the stirred tank in the industrial process.

关键词：stirred vessel; laser Doppler velocimeter; eccentric agitation; mean velocity;

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Investigation on Eccentric Agitation in the Stirred Vessel Using 3D-Laser Doppler Velocimeter

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Abstract The spatial structure of the velocity field in a stirred vessel with water has been measured and analyzed using the laser Doppler velocimeter technique, with the immersing depth and agitation speed of the impeller remaining approximately constant. The experimental results were provided such as the mean velocity field, fluctuating velocities, turbulent kinetic energy, Reynolds shear stress and time series of the velocity in the stirred tank. These results probably provided the valuable basis to further optimize and enlarge the stirred tank in the industrial process.

Key words: stirred vessel; laser Doppler velocimeter; eccentric agitation; mean velocity;

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