

## عنوان مقاله:

Laminar Sinusoidal and Pulsatile Flows in a Curved Pipe

## محل انتشار:

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## خلاصه مقاله:

Two components of pulsatile flow (i.e. steady flow and sinusoidal flow) are studied separately by particle image velocimetry (PIV). The topology of the secondary flow structures, axial vorticities and transverse strain rates in a pure sinusoidal flow and also in a steady flow are compared to those in a pulsatile flow through a curved pipe. The experimental setup provides different conditions for the flow entering a  $90^\circ$  circular curved pipe of diameter  $0.04$  m and curvature radius  $0.22$  m. Pulsatile flows were studied for two stationary Reynolds numbers,  $Re_{st}=420$  and  $Re_{st}=600$ . The frequency parameters  $\omega=10.26$  and  $\omega=14.51$  were chosen to study pure sinusoidal flow ( $\omega=0.5$ ). Pulsating conditions were obtained by combining steady and sinusoidal flow for  $(Re_{st}=600, \omega=10.26)$ ,  $(Re_{st}=600, \omega=14.51)$  and  $(Re_{st}=420, \omega=14.51)$ . The results of this study contribute to a better understanding of mixing in a developing laminar flow through curved pipes (helical and twisted/chaotic mixers) in steady state flow, pure sinusoidal flow and pulsatile flow.

## کلمات کلیدی:

Curved pipe, Laminar flow, Sinusoidal flow, Pulsatile flow, mixing, PIV

## لینک ثابت مقاله در پایگاه سیویلیکا:

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