عنوان مقاله:

Numerical Simulation of Turbulent Airflow and Micro-Particle Deposition in Upper Human Respiratory System

محل انتشار:

دوماهنامه مکانیک سیالات کاربردی, دوره 11, شماره 3 (سال: 1397)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

The nasal cavity and sinuses are a component of the upper respiratory system and study the air passage into the upper component of human airway is consequential to amend or remedy deficiency in human respiration cycle. The nose performs many paramount physiological functions, including heating, humidifying and filtering inspired air, as well as sampling air to smell. Aforetime, numerical modeling of turbulent flow in authentic model of nasal cavity, sinus, pharynx and larynx has infrequently been employed. This research has tried to study details of turbulent airflow and particle deposition through all spaces in three-dimensional authentic model of human head which is obtained from computed tomography scan images of a ۲۶-years old female head, neck and chest without any problem in her respiratory system that air can flow them. The particle size in this study was opted to be in the range of ۵-۳۰ μm. The particles are tracked through the continuum fluid discretely utilizing the Lagrangian approach.

کلمات کلیدی:

Nasal cavity, Micro, particle, Turbulent flow, CFD, Respiratory system