

## عنوان مقاله:

Estimating shear stress on the wall of arteries assuming Cosserat model for blood

## محل انتشار:

هجدهمین کنفرانس سالانه مهندسی مکانیک (سال: 1389)

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## خلاصه مقاله:

This study is to investigate a method for calculating shear stress on the wall of small arteries using Cosserat model for the blood flow. As it is mentioned in many articles, blood behavior in small arteries is non-Newtonian. Many models have been suggested to describe the treatment of non-Newtonian stress tensor such as Casson's model, power-law and etc. Each model has its priorities and weaknesses for blood flow. Ericksen (1958) has presented Cosserat model which is suitable for fluids that contain suspended particles, like red cells in plasma. But this model has some coefficients those could not be measured experimentally. In this paper genetic-algorithm has been employed to obtain these coefficients for blood. This procedure contains four steps: Driving constitutive equation, solving these equations numerically and verifying the answer, applying GA to determine the viscosity coefficient and calculating the shear stress at the wall of artery. To make use of this algorithm some experimental information of blood velocity is needed. (These data are taken in to account from the work done by Rubak K.Banejee (2001

## کلمات کلیدی:

Cosserat Model, Blood Flow, Genetic- Algorithm

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/95903>

