

Abstract

In this dissertation, the dynamics of blood with suspended magnetic particles in arterial segment are investigated. The flow of blood is examined in the presence of external magnetic field and periodic body acceleration. Expressions for the velocity of blood, temperature and concentration are yielded using Atangana-Baleanu fractional derivative and the problem is solved by employing the Laplace transform as well as finite Hankel transform. The analytical expressions for blood flow velocity, temperature and concentration are obtained. The effects of order of fractional parameter, radiation parameter, metabolic heat source, Peclet number and other important parameters, numerical simulations and graphical illustrations are used and useful consequences are summarized.