Abstract Submitted
for the DFD08 Meeting of
The American Physical Society

Pulsatile flow in small arteries G.J. BRERETON, A. MAJID, M.M. KOOCHESFAHANI, Michigan State University — Womersley’s analyses of blood flow in elastic-walled arteries assume solution forms that treat the flow as periodic and continuously unsteady. In smaller arteries such as the popliteal and anterior tibial, measurements of flow variables indicate that they are not continuously unsteady but are characterized more accurately as rapid transient motions followed by recovery towards an almost stationary state, repeated in successive cycles. When the recovery phase exceeds about half a viscous timescale, the flow comes to rest before restarting in the following cycle. As such, its solution is that of an initial value problem and not a continuously unsteady one. In this talk, we discuss the accuracy with which flows measured in these arteries are described by solutions that treat them as initial value problems.

Giles Brereton
Michigan State University

Date submitted: 06 Aug 2008

Electronic form version 1.4