

## A GRAPHICAL USER INTERFACE (GUI) OF BLOOD FLOW THROUGH TAPERED ARTERIES WITH TRIPLE OVERLAPPING STENOSIS

Normazni binti Abdullah & Dr. Zuhaila binti Ismail

A mathematical model of a generalized Power law of blood flow through a tapered artery with three overlapping stenosis is visualized by using Graphical User Interface (GUI) in MATLAB. GUI is a program builds by applying the capabilities of computer graphic in making the program a lot easier to use. The flow model is considered to be two-dimensional, unsteady, laminar, incompressible and asymmetric. The continuity and momentum equations in terms of the viscous shear stress in the cylindrical coordinate system are first derived. Then, the governing equation and the boundary conditions are transformed using radial coordinate transformations before it solved numerically using finite difference scheme. Numerical results obtained show the effect of blood flow characteristics such as the axial and radial velocities, flow rate and wall shear stress at different tapered angle and time. Based on the result acquired, both axial and radial velocities increase as taper angle increase. However, the wall shear stress indicates the decrease in value as taper angle increase. In contrast, the radial velocity may increase or decrease depending on the time difference.

## INTEGRAL EQUATIONS WITH DEGENERATE KERNEL AND SOME APPLICATION

Norsharmila binti Osman & PM Dr Mukhiddin Muminov

The theory of integral equations has close contacts with many different areas of mathematics. This research are generally about the Fredholm integral equation with degenerate kernel and the spectral analysis of the lattice two-particle Schrödinger operator. Within this research, we obtained the existence of solutions of non-homogeneous integral equation. Also, we obtain the condition of existence of existing of solutions for homogeneous integral equations with degenerate kernel. Applying the obtained results we get the condition of existence of the eigenvalues for two particle Schrödinger operator. This study deal with linear integral equations that is, equation involving an unknown function with appears under an integral sign. Such equations occur widely in diverse areas of applied mathematics and physics. One obvious reason for using the integral equation rather than differential equations is that all the conditions specifying the initial value problems for a differential equation can often be condensed into a single integral equation. There are various method to solve an integral problem in analytic but, this study will focusing on degenerate kernel method of Fredholm integral equation problem. We also used *Wolfram Mathematica 9.0 software* to solve someproblem.