**ME 55600/I0200: HW #1 Governing Equations**

The velocity vector for an axisymmetric flow in spherical coordinates is defined by,

A picture containing text, map, wire

Description automatically generated

and the continuity equation is:

1. Show that the continuity equation is satisfied by using the following definition of a stream function :
2. For low Reynolds numbers it can be shown that the axisymmetric Navier Stokes equations are reduced to

where,

Show that the equation can be represented by

where the operator is