

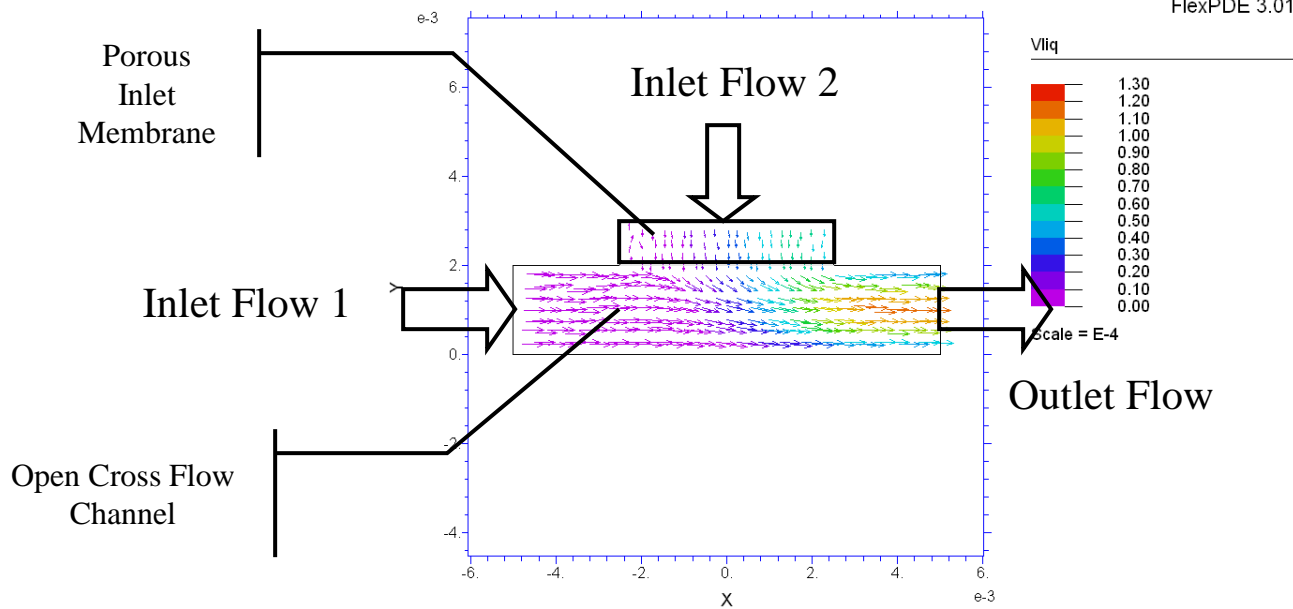
Pressure Driven Viscous Flow through a Micro-Channel
in the Presence of a
Porous Membrane Outflow Colliding at Right Angles

A Finite Element Analysis (FEA) using flexPDE

Craig E. Nelson - Consultant Engineer

Pressure Driven Gas-Liquid Convective Diffusion-Two Fluid Model

11:12:03 1/8/04
FlexPDE 3.01f

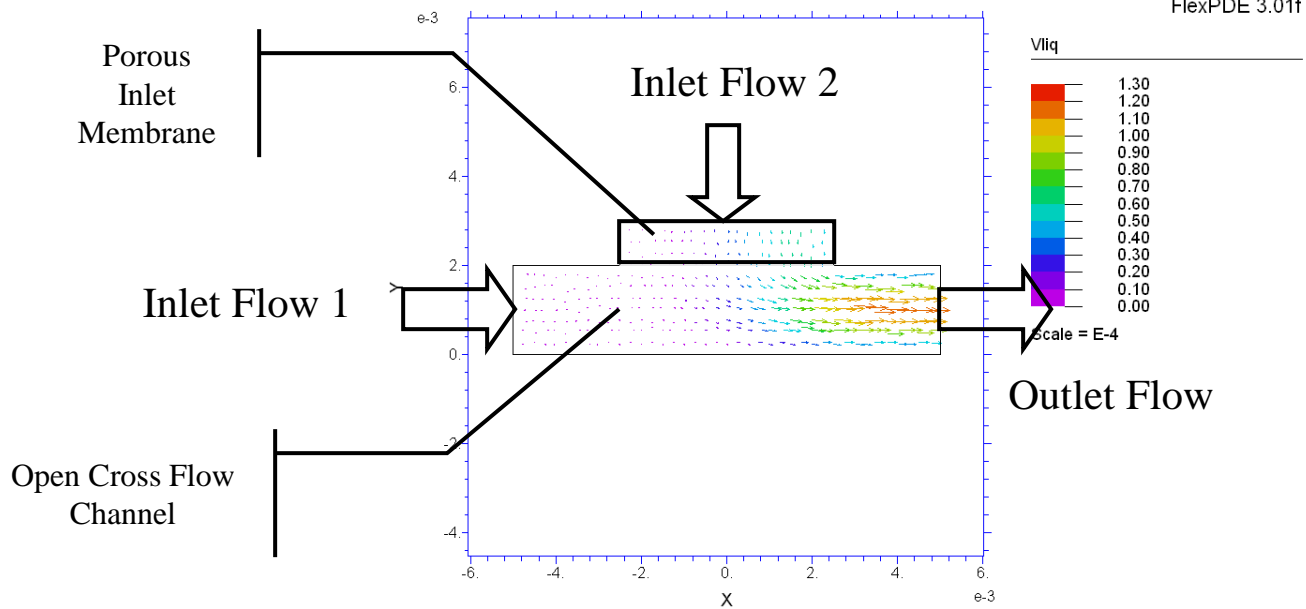


TWOPHASEFLOWINCHANNEL-ONE FLUID MODEL 040107 C: Grid#1 p2 Nodes=248 Cells=103 RN
Re= 0.494070

Vector Plot of Velocity – Unit Length Arrows

Pressure Driven Gas-Liquid Convective Diffusion-Two Fluid Model

11:12:03 1/8/04
FlexPDE 3.01f

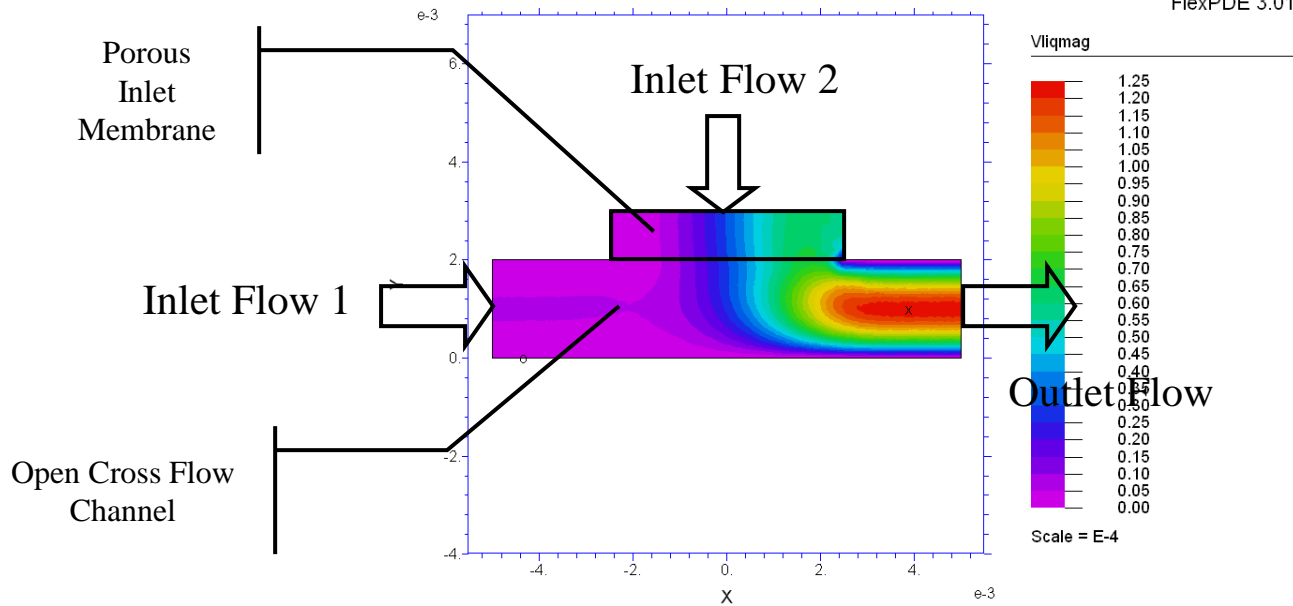


TWOPHASEFLOWINCHANNEL-ONE FLUID MODEL 040107 C: Grid#1 p2 Nodes=248 Cells=103 RN
Re= 0.494070

Vector Plot of Velocity

Pressure Driven Gas-Liquid Convective Diffusion-Two Fluid Model

11:12:03 1/8/04
FlexPDE 3.01f

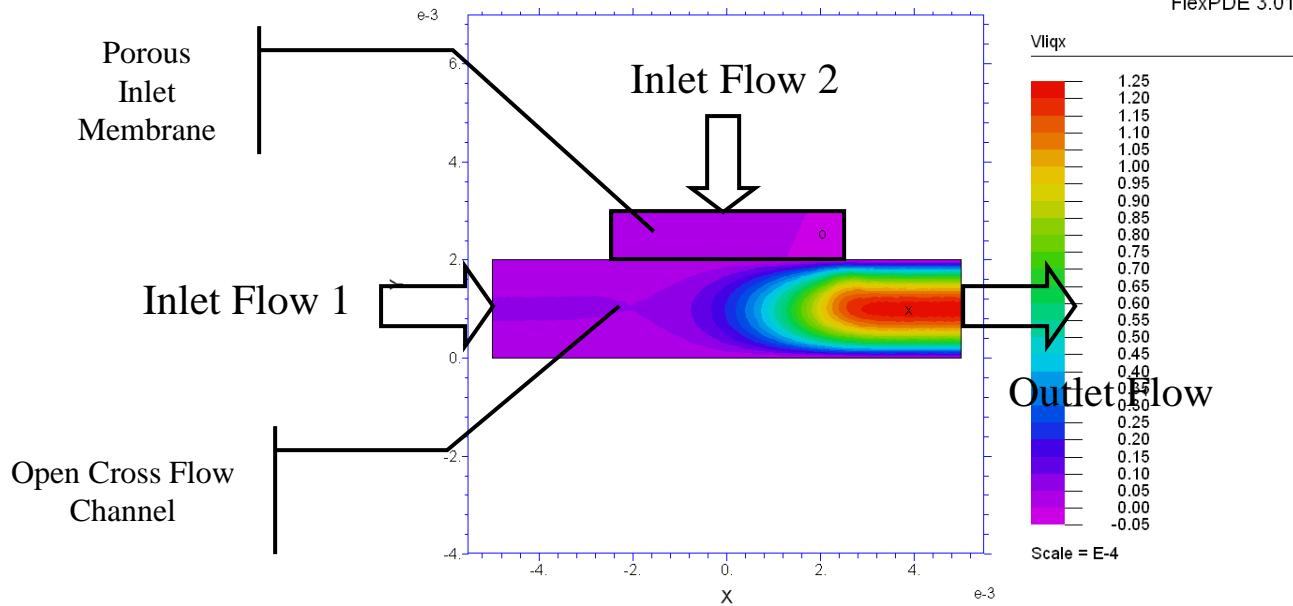


TWOPHASEFLOWINCHANNEL-ONE FLUID MODEL 040107 C: Grid#1 p2 Nodes=248 Cells=103 RM
Re= 0.494070 Integral= 9.002424e-10

Contour Plot of Velocity - Magnitude

Pressure Driven Gas-Liquid Convective Diffusion-Two Fluid Model

11:12:03 1/8/04
FlexPDE 3.01f

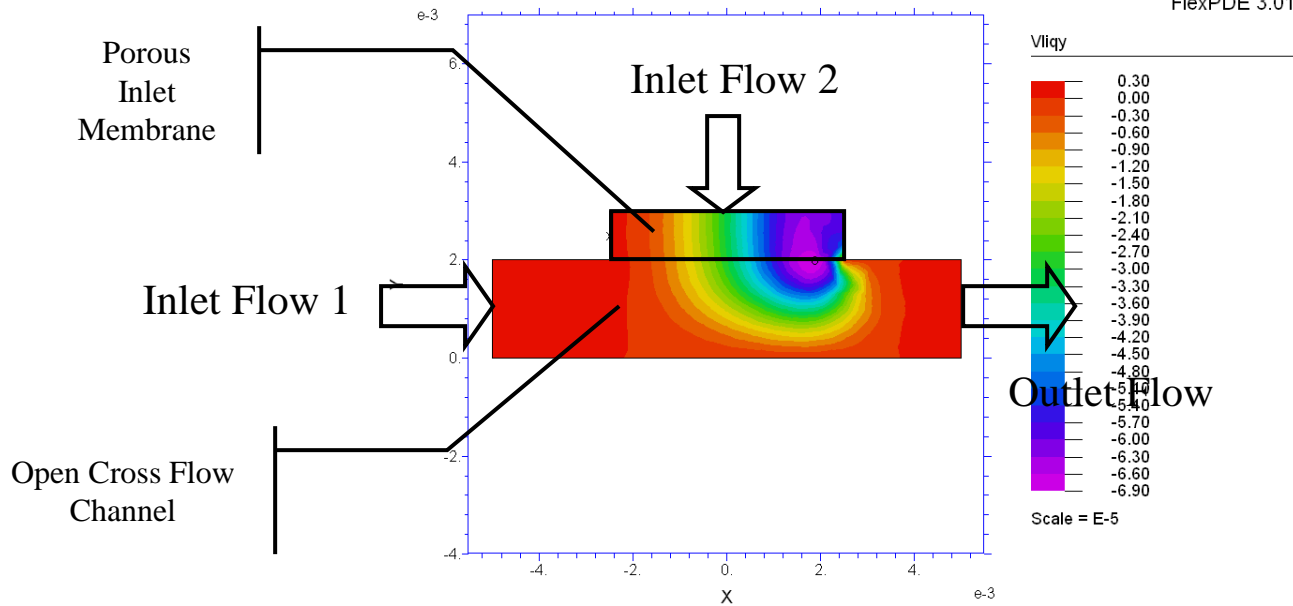


TWOPHASEFLOWINCHANNEL-ONE FLUID MODEL 040107 C: Grid#1 p2 Nodes=248 Cells=103 RM
Re= 0.494070 Integral= 6.673340e-10

Contour Plot of Velocity in the Horizontal Direction

Pressure Driven Gas-Liquid Convective Diffusion-Two Fluid Model

11:12:03 1/8/04
FlexPDE 3.01f

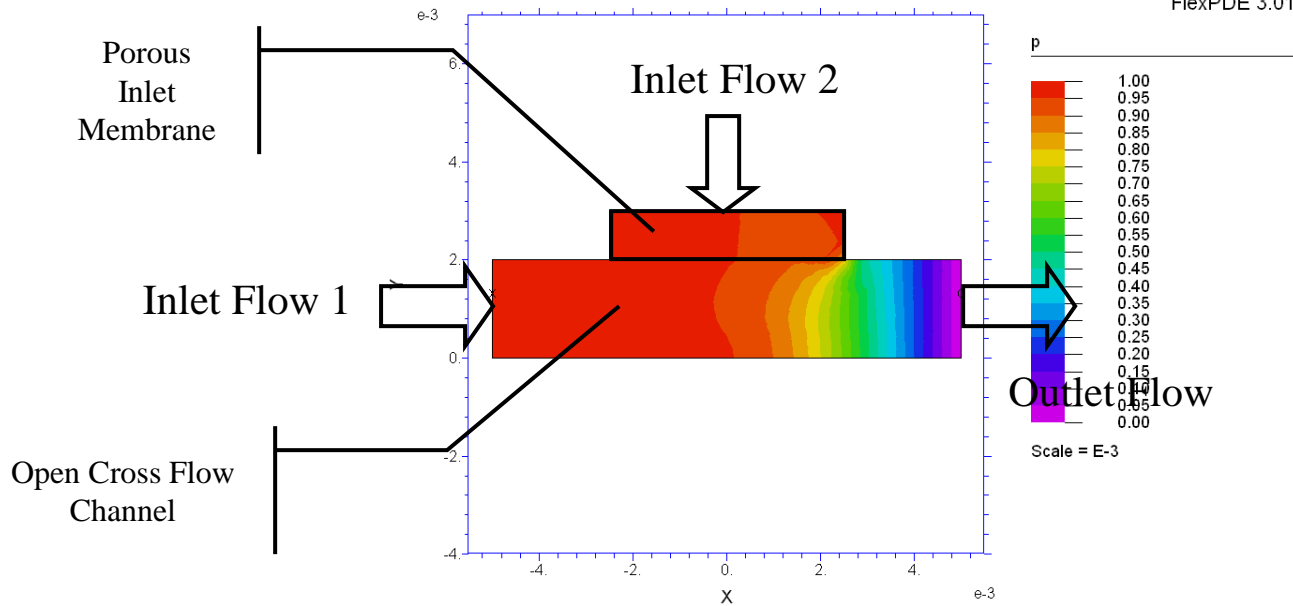


TWOPHASEFLOWINCHANNEL-ONE FLUID MODEL 040107 C: Grid#1 p2 Nodes=248 Cells=103 RM
Re= 0.494070 Integral= -3.336235e-10

Contour Plot of Velocity in the Vertical Direction

Pressure Driven Gas-Liquid Convective Diffusion-Two Fluid Model

11:12:03 1/8/04
FlexPDE 3.01f



TWOPHASEFLOWINCHANNEL-ONE FLUID MODEL 040107 C: Grid#1 p2 Nodes=248 Cells=103 RN
Re= 0.494070 Integral= 2.030443e-8

Contour Plot of Pressure

Pressure Driven Gas-Liquid Convective Diffusion-Two Fluid Model

Dimensions and Flow Parameters

Lchan= 0.010000
Hchan= 2.000000e-3
viscLiq= 1.000000e-3
densLiq= 1000.000
Qinlet= 7.138548e-9
Qporous= 1.514269e-7
Qinlet + Qporous= 1.585654e-7
Qoutlet= 1.646403e-7

Various Model Parameters