Convective Brinkman-Forchiemer Extended Flow through Channel Filled with Porous Material: An Approximate Analytical Approach

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Abstract : An approximate analytical solution is presented for convective flow in a horizontal channel filled with porous material. The Brinkman-Forchheimer extension of Darcy equation is utilized to model the fluid flow while the energy equation is utilized to model temperature distribution in the channel. The solutions were obtained utilizing the newly suggested technique and compared with those obtained from an implicit finite-difference solution.