

# The effect of alternative implementations of the forcing function in the Poisson problem using Spectral Element Method

Presenter: Changkyu Park

Moore's law states that computational power doubles every two years. Although this has not been in full effect the last couple of years, there is no doubt that the computational ability is improving continuously. Taking advantage of this, efficiency in application of numerical methods improves as well. Among many systems, the Poisson problem is a simple yet interesting one to analyse due to its wide range of applicability, in electrostatics and fluid dynamics for example. The Poisson problem can be analysed with different implementation of the forcing term with inclusion of a pre-determined particular solution,  $u_p$ . In this presentation, comparison between the results of the error convergence of the two implementations is presented. In 1D, the two systems show highly similar results. However, this convergence comparison is to be further analysed in 2D which allows for a non-linear homogeneous solution,  $u_o$ .