

# **Numerical Analysis and Singularly Perturbed Differential Equations**

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## **Abstract:**

In this talk, I will discuss the role of numerical analysis in the design of numerical algorithms to approximately solve certain classes of singularly perturbed differential equations. The solutions of singularly perturbed differential equation have narrow layer regions in the domain, where the solution exhibits steep gradients. Classical numerical methods suffer major defects in these regions. Alternative computational approaches will be discussed and the central issues in the associated numerical analysis of these layer-adapted algorithms will be outlined.