# CUBIC SPLINE APPROXIMATION METHOD FOR PERIODIC SINGULAR PERTURBATION PROBLEM

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**Special Issue**
**Proceedings of International Virtual Conference on**
**"Mathematical Sciences and Applications, ICMSA - 2022"**

**Abstract:** A class of singularly perturbed boundary value problems with periodic boundary conditions is investigated in this study. To handle this problem, a numerical solution using a cubic spline scheme and non-uniform meshes is proposed, with the system being found to be second order accurate in the maximum norm.

**Keywords and Phrases:** Singular perturbation, Periodic conditions, Variable mesh, Cubic spline scheme, Layers.

**2020 Mathematics Subject Classification:** 65L10, 65L11, 65L60.

## 1. Introduction

Many practical problems, such as mathematical boundary layer theory or approximation of solution of various problems described by differential equations involving large or small parameter(s), have become more difficult to solve precisely