

Research Announcement

A NON-CONFORMING FINITE ELEMENT METHOD  
FOR A SINGULARLY PERTURBED  
BOUNDARY VALUE PROBLEM

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We analyse a new non-conforming Petrov-Galerkin finite element method for solving linear singularly perturbed two-point boundary value problems without turning points. The method is shown to be convergent, uniformly in the perturbation parameter, of order  $h^{1/2}$  in a norm slightly stronger than the energy norm. Our proof uses a new abstract convergence theorem for Petrov-Galerkin finite element methods. Full details appear in [1].

Reference

- [1] D. Adam, A. Felgenhauer, H.-G. Roos and M. Stynes, *A nonconforming finite element method for a singularly perturbed boundary value problem* (1992) (Preprint 1992-10, Mathematics Department, University College Cork).

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BENEFITS AND ADVANTAGES OF AN  
INTEGRATED MATHEMATICS AND  
COMPUTER SCIENCE DEGREE

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Introduction.

Computer science grew out of mathematics - it is surely enough to mention the names and contributions of Babbage, Boole, Hilbert, Von Neumann, Turing. On the other hand, it is clear that mathematics grew out of computation. The two areas are intimately related. Strenuous efforts have been made ever since computers were invented to separate mathematics and computer science. Modern techniques in both areas serve only as a reminder of how much each can be dependent on the other.

Difficulties.

In schools, mathematics is thought of as a 'closed' subject, whereas computer science is thought of as a 'technical' subject. Thus many creative individuals are turned off mathematics and computer science at an early stage.

A pure computer science degree is now considered in some quarters to be a *purely technical* training and not a proper education for a scientist or an engineer. One major employer is quoted as saying: "I only hire mathematicians and engineers—computer science graduates do not know how to *solve problems*".

Engineering and physical science degree programmes insist on a reasonable mathematical background. This is not true for computer science programmes and the graduate here needs this type of background even more than an engineer—consider, as an