# CONFERENCIA

## "High-order compact schemes for solution and derivatives of elliptic PDEs of BVPs"

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**RESUMEN:**

In this talk, I will discuss some new high order compact (HOC) schemes, particularly fourth order, for the solution, first and second order partial derivatives for elliptic boundary value problems with Dirichlet, Neumann, and Robin boundary conditions (BCs). Convergence analyses are also presented to show that the order of the convergence is the same for both the solutions and the partial derivatives. In the construction of new high order compact schemes for computing partial derivatives, the PDE itself, the source term, and the boundary conditions will all be utilized. The new HOC idea and method has also been applied to derive high order stable discretization at hanging nodes.