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New Spaces for DEC

Discrete Exterior Calculus (DEC) is a combinatorial discretization of exterior calculus. I will first show how the primal-dual discretization of DEC can be viewed in terms of the finite element exterior calculus framework. Then I will describe a family of new piecewise constant differential forms spaces for interpreting the mass and stiffness matrices of DEC. This is joint work with Alan Demlow (Texas A&M Math) and Kaushik Kalyanaraman (UIUC CS).