998-35-81 **Ismael Herrera\*** (`iherrera@servidor.unam.mx`), Apartado Postal 22-582, 14000 Mexico, D.F., Mexico. *A General and Systematic Discontinuous Galerkin Method.*

A general theory of boundary value problems formulated in discontinuous fields, is presented. This leads to a unified continuous approach to domain decomposition methods, which is here used to formulate discontinuous Galerkin methods in a general and systematic manner, in space and time. Two classes of discontinuous Galerkin methods are distinguished: direct and indirect methods. Some implications in parallel processing, matrix condensation and discretization procedures are briefly discussed. The methodology is applicable independently of the type of partial differential equation considered, as it is here illustrated through specific examples. (Received February 10, 2004)