

**CONTACT SOLUTIONS FOR FULLY NONLINEAR PDE SYSTEMS
AND APPLICATIONS TO CALCULUS OF VARIATIONS IN L^∞**

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We will introduce the rudiments of a new theory of non-smooth solutions which applies to fully nonlinear PDE systems and extends Viscosity Solutions of Crandall-Ishii-Lions to the general vector case. Key ingredient is the discovery of a notion of Extremum for maps which extends min-max uniquely and allows for “nonlinear passage of derivatives” to test maps. The notions supports uniqueness, existence and stability results, preserving most features of the scalar viscosity counterpart. We will also discuss applications in vector-valued Calculus of Variations in L^∞ and Hamilton-Jacobi PDE with vector solution.