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1 Control Volume Form

Differential conservation laws, equipped with adequate constitutive, boundary, and initial data, define the requirements for all sufficiently smooth functions that describe how the conserved quantities evolve at every point in space-time.

However, solving for these functions for an arbitrary set of laws and data is a formidable, if not impossible, task. As such, numerical methods are often used to approximately satisfy, in some sense, the set of conservation laws on a finite set of domains in space-time as opposed to the infinite set satisfied by the underlying continuous functions.