

Integrability of continuous bundles

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We give new sufficient conditions for the integrability and unique integrability of continuous tangent sub-bundles on manifolds of arbitrary dimension, generalizing Frobenius' classical Theorem for C^1 sub-bundles. Using these conditions we derive new criteria for uniqueness of solutions to ODE's and PDE's and for the integrability of invariant bundles in dynamical systems. In particular we give a novel proof of the Stable Manifold Theorem and prove some integrability results for dynamically defined dominated splittings.