Symplectic Topic

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1   Symplectic Manifold

Definition 1.1. A smooth manifold M is called symplectic if M is equiped with a nondegenerated closed 2-form ω .

Let f be a smooth function on M. There exist a unique vector fields X_f such that

$$\omega(X_f, -) = \mathrm{d}f(-).$$

Then we can define a Poisson bracket on M by

$$\{f, g\} := \omega(X_f, X_g).$$

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