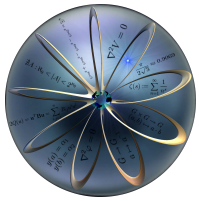

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## conormal bundle

| | |
|---|---|
| Canonical name | ConormalBundle |
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Let $X$ be an immersed submanifold of $M$, with immersion $i : X \to M$. Then as with the normal bundle, we can pull the cotangent bundle back to $X$, forming a bundle $i^*T^*M$. This has a canonical pairing with $i^*TM$, essentially by definition. Since $TX$ is a natural subbundle of $i^*TM$, we can consider its annihilator: the subbundle of $i^*T^*M$ given by

$$\{(x, \lambda) | x \in X, \lambda \in T^*_{i(x)}M, \lambda(v) = 0 \forall v \in T_xX\}.$$

This subbundle is denoted $N^*X$, and called the conormal bundle of $X$.

The conormal bundle to any submanifold is a natural Lagrangian submanifold of $T^*M$.