

Vertical Helicoids and Catenoids in $M \times \mathbb{R}$.

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In this talk, we consider an arbitrary smooth Riemannian manifold M^n , and address the problem of constructing minimal hypersurfaces in $M \times \mathbb{R}$ which have the same fundamental properties of the standard helicoids and catenoids of Euclidean space \mathbb{R}^3 . We call them *vertical helicoids* and *vertical catenoids*. We establish necessary and sufficient conditions on M for the existence of such minimal hypersurfaces, and also develop general methods for their construction.