Takens' Theorem (1981)

Let $\boldsymbol{M}$ be a compact manifold of dimension m, ϕ a smooth vector field, and Y a smooth function on $\boldsymbol{M}$. It is a generic property that

$$\boldsymbol{\Phi}_{(\phi,Y)}(\underline{x}):\boldsymbol{M}\longrightarrow \mathbb{R}^{2m+1}$$

is an embedding, where ϕ is the flow on $\boldsymbol{M}$ and

$$\boldsymbol{\Phi}_{(\phi,Y)}(\underline{x}) = <Y(\underline{x}),\ Y(\phi(\underline{x})),\ Y(\phi^2(\underline{x})),\ \ldots,\ Y(\phi^{2m}(\underline{x}))>$$