

# Scattered Data Problems on Manifolds: Ambient Solutions

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## **Abstract**

The talk will cover approaches to scattered data problems on closed submanifolds, i.e. approximation problems with only a set of discrete data sites  $\Xi$  from a compact submanifold  $\mathbb{M} \subseteq \mathbb{R}^d$  without boundary and corresponding function values  $\Upsilon$  given. It will present solutions that are obtained by suitable approximation methods for function spaces in the ambient space of  $\mathbb{M}$ . A special focus will be set on interpolation problems for sparse interpolation sites and smooth extrapolation from these sparse sites into regions of  $\mathbb{M}$  without any data sites.