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*The Algebraic  $K$ -Theory of Zig-Zag Persistence Modules*

In this talk, we will first see how persistence modules (a primary tool in topological data analysis) have a natural home in the setting of stratified spaces and constructible cosheaves. In particular, we focus on zig-zag modules, which correspond to one-parameter filtrations. We then outline how the algebraic  $K$ -theory of zig-zag modules can be computed via an additivity result, aided by an equivalence between the category of zig-zag modules and the combinatorial entrance path category on a stratified  $\mathbb{R}$ . Once equipped with the  $K$ -theory of zig-zag modules, we see other one-parameter topological summaries (such as Euler characteristic curves) as classes of  $K_0$ .