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**Title:** Enriched algebraic weak factorisation systems

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**Session:** Category Theory, Algebraic Topology, K-Theory

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It is known that if  $\mathcal{V}$  is a monoidal model category in which every object is cofibrant, then any cofibrantly generated  $\mathcal{V}$ -enriched model category has a  $\mathcal{V}$ -enriched cofibrant replacement comonad; conversely, if a monoidal model category  $\mathcal{V}$  (with cofibrant unit object) has a  $\mathcal{V}$ -enriched cofibrant replacement comonad, then every object of  $\mathcal{V}$  must be cofibrant. These results leave open the question of what extra structure, if not an enrichment in the ordinary sense, is naturally possessed by the cofibrant replacement comonad of an enriched model category when not every object of the base monoidal model category is cofibrant.

In this talk I will introduce the notions of locally weak comonad and of monoidal and enriched algebraic weak factorisation system, and will propose an answer to the above question by showing that the cofibrant replacement comonad of an enriched algebraic weak factorisation system is a locally weak comonad. Special attention will be given to the monoidal model category of 2-categories with the Gray tensor product, in which not every object is cofibrant.