

ABSTRACT.  $k$ -graphs are higher-rank analogues of directed graphs which were first developed to provide combinatorial models for operator algebras of Cuntz–Krieger type. Here we develop a theory of the fundamental groupoid of a  $k$ -graph, and relate it to the fundamental groupoid of an associated graph called the 1-skeleton. We also explore the failure, in general, of  $k$ -graphs to faithfully embed into their fundamental groupoids.