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Locally injective homomorphisms

A homomorphism f of a graph G to a graph H is *locally injective* if, for every vertex x , the restriction of f to the neighbourhood of x is injective. When G and H are directed graphs there are a number of ways that the term “neighbourhood” could be interpreted. We shall survey results about the complexity of locally injective homomorphisms and their associated locally injective colourings, and briefly mention some recent work with Russell Campbell and Nancy Clarke.