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Categorification of quiver mutation

Mutation of quivers (i.e., directed graphs) is an essential ingredient in the definition of the influential theory of cluster algebras introduced by Fomin and Zelevinsky about 10 years ago. One approach to the study of cluster algebras has been to "categorify" the main concepts in their definition. In this lecture we illustrate the idea of categorification through categorification of quiver mutation, starting with the special case of mutation at the vertices called sinks,from work by Gelfand, Bernstein and Ponomarev from around 1970.