

## **HMS categorical symmetries and hypergeometric systems**

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Hilbert's 21st problem asks about the existence of Fuchsian linear differential equations with a prescribed "monodromy representation" of the fundamental group. The first (slightly erroneous) solution was proposed by a Slovenian mathematician Plemelj. A suitably adapted version of this problem was solved, depending on the context, by Deligne, Mebkhout, Kashiwara-Kawai, Beilinson-Bernstein, ... The solution is now known as the Riemann-Hilbert correspondence.

Homological mirror symmetry predicts the existence of an action of the fundamental group of the "stringy Kähler moduli space" (SKMS) on the derived category of an algebraic variety. This prediction was established by Halpern-Leistner and Sam for certain toric varieties. The decategorification of the action found by HLS yields a representation of the fundamental group of the SKMS and in joint work with Michel Van den Bergh we show that it is given by the monodromy of an explicit hypergeometric system of differential equations.