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Binary differential equations and 3-webs with singularities

A 3-web with singularities is a geometric structure locally given by three one-dimensional distributions on an open dense subset U of a two-dimensional manifold M . A point in U is called *regular* if values of the distributions are pairwise transversal at this point, all the other points of M are called *singular*.

A binary differential equation of third degree determines a 3-web with singularities (see, for example, T. Fukui and J. J. Nuño-Ballesteros, Isolated singularities of binary differential equations of degree n , Publicacions Matemàtiques, vol. 56, 65–89, 2012). We describe singularities of this 3-web, and show how to find topological and differential invariants of these singularities using methods developed in the paper F.A. Arias, J.R. Arteaga, and M. Malakhaltsev, 3-webs with singularities, Lobachevskii J. of Math, 37 (1), 1–20, 2016.