

# Simply-laced isomonodromy systems

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A new class of isomonodromy equations will be introduced and shown to admit Kac-Moody Weyl group symmetries. This puts into a general context some results of Okamoto on the 4th, 5th and 6th Painleve equations, and shows where such Kac-Moody root systems occur "in nature". A key point is that one may go beyond the class of affine Kac-Moody root systems. As examples, by considering certain hyperbolic Kac-Moody Dynkin diagrams, we find there is a sequence of higher order Painleve systems lying over each of the classical Painleve equations. This leads to a conjecture about the Hilbert scheme of points on some Hitchin systems.

Comments: 68 pages, lots of figures. Final version, to appear in Pub. Math. IHES

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