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local systems

(Submitted on 17 Jul 2011)

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Mathematics > Representation Theory

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Let S be a path-connected, locally-compact CW-complex, and let M be a subcomplex with finitelymany components. A `decorated SL\_2(C)-local system' is an SL\_2(C)-local system on S, together with a choice of `decoration' at each component of M (a section of the stalk of an associated vector bundle).

Character algebras of decorated SL\_2(C)-

We study the (decorated SL\_2(C)-)character algebra of (S,M), those functions on the space of decorated SL\_2(C)-local systems on (S,M) which are regular with respect to the monodromy. The character algebra is presented explicitly. The character algebra is then shown to correspond to the algebra spanned by collections of oriented curves in S modulo simple graphical rules. As an intermediate step, we obtain an invariant-theory result of independent interest: a presentation

of the algebra of  $SL_2(C)$ -invariant functions on  $End(V)^m + V^n$ , where V is the tautological representation of  $SL_2(C)$ .

Comments: 37 pages Subjects: Representation Theory (math.RT); Geometric Topology (math.GT); Quantum Algebra (math.QA) Cite as: arXiv:1107.3329 [math.RT] (or arXiv:1107.3329v1 [math.RT] for this version)

## **Submission history**

From: Gregory Muller [view email] [v1] Sun, 17 Jul 2011 19:35:52 GMT (35kb)

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