

## Frobenius Manifolds Pairing and Invariant Theory

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**Abstract :** The orbit space of an irreducible representation of a finite group is a variety with the ring of invariant polynomials as a coordinate ring. The invariant ring is a polynomial ring if and only if the representation is a reflection representation. Boris Dubrovin shows that the orbits spaces of irreducible real reflection representations acquire the structure of polynomial Frobenius manifolds. Dubrovin's method was also used to construct different examples of Frobenius manifolds on certain reflection representations. By successfully applying Dubrovin's method on non-polynomial invariant rings of linear representations of dicyclic groups, it gives some results that magnify the relation between invariant theory and Frobenius manifolds.

**Keywords :** invariant ring, Frobenius manifold, inversion, representation theory

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