

# Martindale rings and H-module algebras with invariant characteristic polynomials

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## Abstract

Under study is the category  $\mathcal{A}$  of the possibly noncommutative H-module algebras that are mapped homomorphically onto commutative algebras. The H-equivariant Martindale ring of quotients  $Q_H(A)$  is shown to be a finite-dimensional Frobenius algebra over the subfield of invariant elements  $Q_H(A)^H$  and also the classical ring of quotients for  $A$ . We introduce a full subcategory  $\tilde{\mathcal{A}}$  of  $\mathcal{A}$  such that the algebras in  $\tilde{\mathcal{A}}$  are integral over its subalgebras of invariants and construct a functor  $\mathcal{A} \rightarrow \tilde{\mathcal{A}}$  which is left adjointed to the inclusion  $\tilde{\mathcal{A}} \rightarrow \mathcal{A}$ . © 2012 Pleiades Publishing, Ltd.

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## Keywords

Hopf algebras, invariant theory, Martindale ring of quotients