

# **Solomon's Theorem, differential derivations, and Coxeter numbers over arbitrary fields**

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Louis Solomon's celebrated 1963 theorem exhibits the space of differential forms invariant under a reflection group as an exterior algebra in its own right. Tools of Gutkin and Opdam on characters may be used to develop an analog of Solomon's Theorem for invariant differential derivations, resolving some conjectures motivated by Catalan combinatorics. These classical tools break down when the characteristic of the underlying field divides the order of the acting reflection group. We discuss Solomon's theorem and invariant differential derivations in this modular setting and give analogues of Weyl and Coxeter groups that behave like well-generated (duality) groups.