

## The $P'$ -operator, the $Q'$ -curvature, and the CR tractor calculus

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**Abstract.** We establish an algorithm which computes formulae for the CR GJMS operators, the  $P'$ -operator, and the  $Q'$ -curvature in terms of CR tractors. When applied to torsion-free pseudo-Einstein contact forms, this algorithm both gives an explicit factorisation of the CR GJMS operators and the  $P'$ -operator, and shows that the  $Q'$ -curvature is constant, with the constant explicitly given in terms of the Webster scalar curvature. We also use our algorithm to derive local formulae for the  $P'$ -operator and  $Q'$ -curvature of a five-dimensional pseudo-Einstein manifold. Comparison with Marugame's formulation of the Burns-Epstein invariant as the integral of a pseudohermitian invariant yields new insights into the class of local pseudohermitian invariants for which the total integral is independent of the choice of pseudo-Einstein contact form.

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