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**Explicit Formulas for Eigenvalues of Capelli Operators for the Lie Superalgebra  $\mathfrak{osp}(1|2n)$**

We define a natural basis for the algebra of  $\mathfrak{gosp}(1|2n)$ -invariant differential operators on the affine superspace  $\mathbb{C}^{1|2n}$ . We prove that these operators lie in the image of the centre of the enveloping algebra of  $\mathfrak{gosp}(1|2n)$ . Using this result, we compute explicit formulas for the eigenvalues of these operators on irreducible summands of  $\mathcal{P}(\mathbb{C}^{1|2n})$ . This settles the Capelli eigenvalue problem for orthosymplectic Lie superalgebras in the cases that were not addressed in recent papers by Sahi, Salmasian, and Serganova. Our main technique relies on an explicit calculation of a certain determinant with polynomial entries.

**Keywords:** Lie superalgebras, interpolation Jack polynomials, Capelli operators, invariant differential operators.

**MSC:** 17B10, 05E05.