Abstract:

As is well known and easy to prove the Weyl algebras \( A_n \) over a field of characteristic zero are simple. Hence any non-zero homomorphism from \( A_n \) to \( A_m \) is an embedding and \( m \geq n \). V. Bavula conjectured that the same is true over the fields with finite characteristic. It turned out that exactly one half of his conjecture is correct (\( m \geq n \) but there are homomorphisms which are not embeddings).

If we replace the Weyl algebra by its close relative symplectic Poisson algebra (polynomial algebra with \( F[x_1, \ldots, x_n; y_1, \ldots, y_n] \) variables and Poisson bracket given by \( \{x_i, y_i\} = 1 \) and zero on the rest of the pairs), then independently of characteristic all homomorphisms are embeddings.