

Invariant differential operators on surfaces and the Green-Griffiths conjecture

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In a projective variety of general type, entire holomorphic curves must satisfy algebraic differential equations given by sections of certain global bundles of jet differential operators. We study the associated graded rings of operators in the case of surfaces, and show that these rings can be computed up to order 4 at least. The calculations also give some hints about the expected general answer. As a consequence, we describe a potential approach for proving the Green-Griffiths conjecture (on a variety of general type, all entire holomorphic curves should lie in a proper algebraic subvariety)