



Mathematics > Algebraic Geometry

# Differential Chow Form for Projective Differential Variety

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In this paper, a generic intersection theorem in projective differential algebraic geometry is presented. Precisely, the intersection of an irreducible projective differential variety of dimension  $d > 0$  and order  $h$  with a generic projective differential hyperplane is shown to be an irreducible projective differential variety of dimension  $d - 1$  and order  $h$ . Based on the generic intersection theorem, the Chow form for an irreducible projective differential variety is defined and most of the properties of the differential Chow form in affine differential case are established for its projective differential counterpart. Finally, we apply the differential Chow form to a result of linear dependence over projective varieties given by Kolchin.

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