

**Avram, A. C.; Derrick, E.; Jančić, D.**  
**On semi-periods.** (English) [Zbl 0982.32014](#)  
Nucl. Phys., B 471, No. 1-2, 293-308 (1996).

Summary: The periods of the three-form on a Calabi-Yau manifold are found as solutions of the Picard-Fuchs equations; however, the toric varietal method leads to a generalized hypergeometric system of equations, first introduced by Gelfand, Kapranov and Zelevinsky, which has more solutions than just the periods. This same extended set of equations can be derived from symmetry considerations. Semi-periods are solutions of the extended GKZ system. They are obtained by integration of the three-form over chains; these chains can be used to construct cycles which, when integrated over, give periods. In simple examples we are able to obtain the complete set of solutions for the GKZ system. We also conjecture that a certain modification of the method will generate the full space of solutions in general.

**MSC:**

- [32G20](#) Period matrices, variation of Hodge structure; degenerations
- [14D05](#) Structure of families (Picard-Lefschetz, monodromy, etc.)
- [14J32](#) Calabi-Yau manifolds (algebraic-geometric aspects)
- [32J17](#) Compact complex 3-folds
- [81T30](#) String and superstring theories; other extended objects (e.g., branes) in quantum field theory

Cited in **3** Documents

**Keywords:**

Calabi Yau manifold; Picard Fuchs equations; hypergeometric system; toric varietal method; chain integration; string theory

**Full Text:** [DOI](#) [arXiv](#)

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