

## HIGHER LOGARITHMS

BY

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**Dedicated to the memory of Professor Kuo-Tsai Chen**

1. Introduction
  2. Multivalued Differential Forms
  3. A Class of Multivalued Forms Appropriate for Algebraic Geometry
  4. The Dilogarithm
  5. The Grassmann Complex
  6. Higher Logarithms
  7. Higher Albanese Manifolds
  8. Rational  $K(\pi, 1)$ 's and the Existence of the 3-Logarithm
  9. Symmetry
  10. Non-Triviality and Indecomposability of the 3-Logarithm
  11. Real Albanese Manifolds and Generalized Bloch-Wigner Functions
  12. Epilogue
- References

*"And finally, in an attempt to unify the entire subject into a coherent whole, difficulties of a different order are encountered, and some central unifying principle has still to be discovered."* (Lewin, Polylogarithms and Associated Functions [L] p. xv.)

### 1. Introduction

Few mathematicians would disagree with the assertion that the logarithm is one of the most important functions in mathematics. During the nineteenth century an analogous function, the *dilogarithm*, was the subject of much research. First defined by Leibnitz in 1696, the dilogarithm was subsequently studied by Euler, Spence, Abel, Hill, Jonquière Kummer, Lindelöf, Lobachevsky, and many others [L]. Recently there has been a resurgence of interest in this remarkable function, due in large part to the

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