

**Majima, Hideyuki**

**Asymptotic analysis for integrable connections with irregular singular points.** (English)

Zbl 0546.58003

*Lecture Notes in Mathematics*. 1075. Berlin etc.: Springer-Verlag. IX, 159 p DM 26.50; \$ 9.30 (1984).

From the preface: "Using strongly asymptotic expansions of functions of several (complex) variables, we prove existence theorems of asymptotic solutions to integrable systems of partial differential equations of the first order with irregular singular points under certain general conditions. We also prove analytic splitting lemmas for completely integrable linear Pfaffian systems. Moreover, for integrable connections with irregular singular points, we formulate and solve the Riemann- Hilbert-Birkhoff problem, and prove analogues of Poincaré's lemma and de Rham cohomology theorem under certain general conditions."

Reviewer: [P.Michor](#)

**MSC:**

[58A17](#) Pfaffian systems

[58-02](#) Research exposition (monographs, survey articles) pertaining to global analysis

[35C20](#) Asymptotic expansions of solutions to PDEs

[32L10](#) Sheaves and cohomology of sections of holomorphic vector bundles, general results

Cited in **8** Reviews  
Cited in **38** Documents

**Keywords:**

asymptotic expansions; Pfaffian systems; Riemann-Hilbert-Birkhoff problem; Poincaré's lemma; de Rham cohomology

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