

Asymptotics for the Painlevé II Equation: Announcement of Result

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*Submitted in honor of Professor S.T. Kuroda,
from whom we have learned so much*

1. Introduction

In this paper we study the asymptotics of a class of solutions of the (homogeneous) Painlevé II (PII) equation

$$(1.1) \quad u_{xx} = 2u^2 + xu, \quad x \in \mathbb{R},$$

as $x \rightarrow \pm\infty$. Following the work of Flaschka and Newell [FN] and Jimbo, Miwa and Ueno [JMU] the PII equation can be solved by means of a Riemann-Hilbert (RH) factorization problem as follows ([FA]; see also [IN]). Let $\Sigma^{(1)}$ denote the oriented contour consisting of six rays, $\Sigma^{(1)} = \bigcup_{k=1}^6 \left\{ \Sigma_j^{(k)} = e^{i(k-1)\pi/3} \mathbb{R}_+ \right\}$,

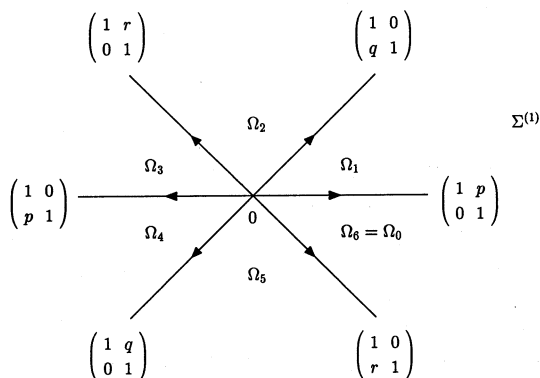


Fig. 1.2

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