

CHAPTER 7

**Sufficient Conditions for Univalence
and Quasiconformal Extendibility
of Analytic Functions**

L.A. Aksent'ev and P.L. Shabalin

*Department of Mathematics and Mechanics, Kazan State University, ul. Lenina 18, 42008 Kazan, Russia
E-mail: shabalin@ksaba.ru*

Contents

1. Introduction and classification of univalence conditions	171
2. A review of sufficient conditions for quasiconformal extendibility in canonical domains	174
3. Conditions for quasiconformal extension in non-canonical domains	190
4. Univalence conditions in multiply connected domains	194
5. Certain relations with universal Teichmüller spaces	197
6. Mechanical and physical applications	199
6.1. Integral representations. Aerohydrodynamical inverse boundary value problem	199
6.2. Exterior inverse boundary value problem and conformal radius	200
6.3. An inversion problem for logarithmic potential	201
6.4. Flows in domains with variable boundaries	201
6.5. Problems of boundary conjugation	202
References	203