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| Autore                  | Volland Dominik   |
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| Descrizione fisica      | 1 online resource (XI, 102 p. 27 illus., 10 illus. in color.)   |
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| Disciplina              | 515   |
| Soggetti                | Mathematical analysis<br>Geometry<br>Mathematics - Data processing<br>Analysis<br>Computational Mathematics and Numerical Analysis  |
| Lingua di pubblicazione | Inglese   |
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| Livello bibliografico   | Monografia  |
| Nota di bibliografia    | Includes bibliographical references.  |
| Nota di contenuto       | Hardy Spaces and Riemann-Hilbert Problems -- The Hilbert Transform in the Classical Setting -- Circle Packings -- Discrete Boundary Value Problems -- Discrete Hilbert Transform -- Numerical Results of Test Computations -- Properties of the Discrete Transform.   |
| Sommario/riassunto      | Dominik Volland studies the construction of a discrete counterpart to the Hilbert transform in the realm of a nonlinear discrete complex analysis given by circle packings. The Hilbert transform is closely related to Riemann-Hilbert problems which have been studied in the framework of circle packings by E. Wegert and co-workers since 2009. The author demonstrates that the discrete Hilbert transform is well-defined in this framework by proving a conjecture on discrete problems formulated by Wegert. Moreover, he illustrates its properties by carefully chosen numerical examples. Basic knowledge of complex analysis and functional analysis is recommended. Contents Hardy Spaces and Riemann-Hilbert Problems The Hilbert Transform in the Classical Setting Circle Packings Discrete Boundary Value Problems Discrete Hilbert Transform Numerical Results of Test Computations Properties of the Discrete Transform Target Groups Lecturers and |

students of mathematics who are interested in circle packings and/or discrete Riemann-Hilbert problems The Author Dominik Volland currently attends his postgraduate studies in the master's program on computational science and engineering at the Technical University of Munich (TUM). .

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