

Filtration under the system of dams and Riemann theta functions

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Abstract

A two-dimensional model of fluid flow under a dam (or cascade of dams) with a cross-section bounded by a rectangular polygonal chain is considered. New numerical-analytical method for computing fluid filtration based on the calculation of Christoffel-Schwarz integral in terms of Riemann theta functions is proposed. Issues of geometric design and optimization of filtration area are discussed (joint study with Oleg Grigoriev).