

## An $\mathbb{R}$ -linear conjugation problem for two concentric annuli

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### Abstract

© 2015, Pleiades Publishing, Ltd. We consider an infinite planar four-phase heterogeneous medium with three concentric circles as a boundary between isotropic medium's components of distinct resistivities/conductivities. It is supposed that the velocity field in this structure is generated by a finite set of arbitrary multipoles. We distinguish two cases when multipoles are inside of medium's components or at the interface. An exact analytical solution of the corresponding  $\mathbb{R}$ -linear conjugation boundary value problem is derived for both cases. Examples of flow nets (isobars and streamlines) are presented.

<http://dx.doi.org/10.1134/S1995080215020201>

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### Keywords

analytic functions, heterogeneous media, refraction,  $\mathbb{R}$ -linear conjugation problem