

On Some Properties of Conformal Mapping

¹ *National Aviation University, Kyiv, Ukraine*
E-mail: karupu@ukr.net

Let a simply connected domain in the complex plane bounded by a smooth Jordan curve and a homeomorphism of the closed unit disk onto the closure of this domain conformal in the open unit disk be given.

Let consider the angle between the tangent to the curve and the positive real axis as the function of the arc length on the curve. O. Kellog proved that if this angle satisfies Holder condition, then the derivative of the function realizing conformal mapping satisfies Holder condition with the same index.

Connection between properties of the boundary of the domain and properties of the considered function was investigated in works by several authors (more detailed see [1] and [2]).

We consider some new finite difference properties of the function realizing conformal mapping on the boundary of the domain formulated for general moduli of smoothness of arbitrary order.

Beside this, estimates for general moduli of smoothness of arbitrary order for the homeomorphism between the closures of two simply connected domains bounded by the smooth Jordan curves conformal in open domains on the boundaries of the domains are established.

- [1] O. W. Karupu, *Acad. Nauk Ukrain. Inst. Mat. Works* **3**, (2006), p. 175, [in Ukrainian].
- [2] O. W. Karupu, *Further progress in analysis, Proceedings of the 6th International ISAAC Congress, Ankara* World Scientific, Singapore, 2009, p.233.