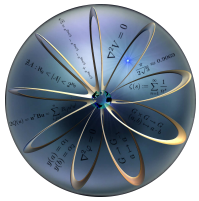

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Rado's theorem

Canonical name	RadosTheorem
Date of creation	2013-03-22 14:08:07
Last modified on	2013-03-22 14:08:07
Owner	jirka (4157)
Last modified by	jirka (4157)
Numerical id	8
Author	jirka (4157)
Entry type	Theorem
Classification	msc 31A05
Related topic	HarmonicFunction
Related topic	PerronFamily

Theorem (Rado)**.** *Suppose* $\Omega \subset \mathbb{R}^2$ *is a* ***http://planetmath.org/ConvexSet****convex* ***http://planetmath.org/Domain2****domain with a smooth boundary* $\partial\Omega$ *and suppose that* $\mathbb{D}$ *is the unit disc. Then given any homeomorphism* $\mu : \partial\mathbb{D} \to \partial\Omega$*, there exists a unique harmonic function* $u : \mathbb{D} \to \Omega$ *such that* $u = \mu$ *on* $\partial\mathbb{D}$ *and* u *is a diffeomorphism.*

References

[1] R. Schoen, S. T. Yau. . International Press, Inc., Boston, Massachusetts, 1997