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S. Giuffrè
D.I.I.E.S., University of Reggio Calabria, Località Feo di Vito, 89122 Reggio Calabria, Italy
sofia.giuffre@unirc.it

A. Pratelli
Department Mathematik, University of Erlangen, Cauerstr. 11, 91058 Erlangen, Germany
pratelli@math.fau.de

D. Puglisi
Department of Mathematics and Computer Sciences, University of Catania, Viale A. Doria 6, 95125 Catania, Italy
dpuglisi@dmi.unict.it

Radial Solutions and Free Boundary of the Elastic-Plastic Torsion Problem

The paper is concerned with radial solutions to the elastic-plastic torsion problem, assuming the free term to belong to $L^p(\Omega)$. In particular, we obtain a necessary and sufficient condition in order that the plastic region exists and we characterize the free boundary. Moreover, we find the explicit radial solution $u \in W^{2,p}(\Omega)$ and the Lagrange multiplier $\overline{\mu} \in L^p(\Omega)$.

Keywords: Elastic-plastic torsion, radial solutions, Lagrange multipliers.

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