# NUMERICAL SOLUTION OF A CLASS OF SINGULAR FREE BOUNDARY PROBLEMS INVOLVING THE $m$-LAPLACE OPERATOR

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For a class of singular free boundary problems with applications in plasma physics, an analytical-numerical approach is proposed based on the asymptotic expansion of the solution in the neighborhood of the singular points. This approach was already used to approximate the solution of certain classes of singular boundary value problems on bounded [1] and unbounded domains [2]. Here, one-parameter families of solutions of suitable singular Cauchy problems, describing the behavior of the solution at the singularities, are derived and based on these families numerical methods for the approximation of the solution of the free boundary problems are constructed.

**REFERENCES**

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