

Barbu, Viorel**The approximate solvability of the inverse one phase Stefan problem.** (English)[Zbl 0733.65092](#)

Numerical methods for free boundary problems, Proc. Conf., Jyväskylä/Finl. 1990, ISNM 99, 33-43 (1991).

[For the entire collection see [Zbl 0722.00035](#).]

The author studies the inverse one phase Stefan problem and proves that under some conditions this problem is approximately solvable in a certain sense. The key idea of the proof is to approximate the inverse Stefan problem by an appropriate optimal control problem, which represents a parabolic boundary problem and can be then investigated by using the standard Sobolev space technique.

Reviewer: O.Titow (Berlin)

MSC:

[65Z05](#) Applications to the sciences

[65M60](#) Finite element, Rayleigh-Ritz and Galerkin methods for initial value and initial-boundary value problems involving PDEs

[35K05](#) Heat equation

[35R30](#) Inverse problems for PDEs

[35R35](#) Free boundary problems for PDEs

[80A22](#) Stefan problems, phase changes, etc.

[80A23](#) Inverse problems in thermodynamics and heat transfer

Cited in **2** Documents

Keywords:

[inverse one phase Stefan problem](#); [optimal control problem](#); [parabolic boundary problem](#); [Sobolev space technique](#)