Obratzov, I. F.; **Nerubailo, B. V.**; **Smirnov, L. G.**

On a certain case of thermoelastic interaction of an opening and a heat spot of elliptic shape. (English. Russian original) Zbl 0882.73082

Phys.-Dokl. 40, No. 3, 142-145 (1995); translation from Dokl. Akad. Nauk, Ross. Akad. Nauk 341, No. 2, 194-197 (1995).

Using complex potentials, the authors solve an elastic plane problem as the following boundary value problem. Given a Hölder continuous function $f(t)$ on an ellipse L. Find the functions φ and ψ analytic in D^+ and D_-, respectively, where D^+ is the interior domain to L, D^- is the exterior domain to L, with the boundary condition $\varphi(t) + t\overline{\varphi'(t)} + \overline{\psi(t)} = f(t)$, $t \in \ell \subset L$, and with given jumps of φ and ψ on $L \setminus \ell$.

Reviewer: V.Mityushev (Słupsk)

MSC:

74S30 Other numerical methods in solid mechanics (MSC2010)
74B99 Elastic materials
30E25 Boundary value problems in the complex plane
80A20 Heat and mass transfer, heat flow (MSC2010)

Keywords:

Muskhelishvili method; complex potentials; elastic plane problem; boundary value problem; Hölder continuous function; ellipse