Abstract

This paper reports on the development of a novel wave based prediction technique for the steady-state sound
radiation analysis of three-dimensional semi-infinite problems. Instead of simple polynomial shape functions,
this method adopts an indirect Trefftz approach, in which it uses the exact solutions of the governing
differential equation for the field variables approximation. Since a fine discretization is no longer required,
the resulting wave based models are substantially smaller than the element-based counterparts. Application
of the proposed approach to various validation examples illustrates an enhanced computational efficiency as
compared with element-based methods.