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Prediction for the acoustic field of a high frequency cylindrical transducer

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The BEM software is implemented in the prediction of the acoustic field produced by a cylindrical transducer, the transducer consists of 1200 PZT pillars which are fixed on the surface of a 156-mm-diameter and 120-mm-height cylinder. The acoustic field around the transducer is measured at the frequency 120kHz using an optical vibrometer, the measured data are fed into the BEM software as the boundary condition, and the directivities of the transducer are forecasted in the vertical and horizontal planes. To verify the calculation, the acoustic field in the far field of the transducer is measured using a hydrophone, and good agreements between the prediction and the measurement convince that the BEM software can be used to predict acoustic fields of cylindrical transducers through distributions of acoustic fields measured in their near fields.