

Coupled Scholte modes in soft solid plates

B. M. Staples¹, A. P. Hibbins¹, and J. R. Sambles¹

¹Department of Physics and Astronomy, University of Exeter, Exeter, EX4 4QL

Coupled Scholte modes in soft solid plates Beth Staples School of Physics, University of Exeter Scholte waves are evanescent acoustic waves that propagate along the interface between a liquid and an elastic solid. In a thin plate, interface waves can couple to form a symmetric and antisymmetric pair. Most of the previous studies on coupled Scholte modes deal with plates, such as metals, where only a single antisymmetric mode exists. This study looks at the behaviour of this mode in soft solids, where the transverse wave speed is lower than the speed of sound in the surrounding liquid. This condition allows for a second, symmetric coupled Scholte mode, the existence of which is experimentally verified by using ultrasound pulses to excite both coupled modes in acrylic plates submerged in water.