

# Detection of point-like scatterers by elastic far-fields in the Foldy regime

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In this talk ...

The scattering by point-like scatterers are described in various regimes, e.g. Born, Foldy and the intermediate regimes. We explain why the Foldy regime is, rigorously, a natural model for taking into account the multiple scattering. For each regime, we study the inverse problems for detecting these scatterers as well as the scattering strengths. In the first part, we do it for the acoustic case and in the second one we study the corresponding models for the linearized isotropic elastic case. In this last case, we show how any of the two body waves, namely the pressure waves P or the shear waves S, is enough for solving the inverse problem. In the 3D case, it is shown that the shear-horizontal part SH or the shear vertical part SV of the shear waves S are also enough for the detection. Finally, we provide extensive numerical tests justifying our findings and discuss the question of resolution in terms of the distance between the scatterers, the used frequency and the scattering strengths. In addition, a comparison study between the three mentioned regimes is also provided.