

# Research topics (June 2012)

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0. **Recently solved problem:** Single-frequency approximation of the coupling ray theory. Coupling-ray-theory travel times and polarization vectors.
1. Including the single-frequency approximation of the coupling ray theory into the interpolation within **ray cells in anisotropic media**.
2. Common-source Kirchhoff prestack depth migration with coupling-ray-theory **S waves**.
3. First-order perturbation of polarization vectors in the coupling ray theory.
4. Linearized inversion based on wavefield sensitivity to structural Gabor functions (sensitivity Gaussian packets).
5. Applicability of the Born approximation: Study of the nonlinearity of ray-theory seismograms with respect to perturbations of the velocity model.