

## **Compressed sensing and sparse recovery in exploration seismology**

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In this course, I will present how recent results from compressed sensing and sparse recovery apply to exploration seismology. During the first lecture, I will present the basic principles of compressive sensing; the importance of random jitter sampling and sparsifying transforms; and large-scale one-norm solvers. I will discuss the application of these techniques to missing trace interpolation. The second lecture will be devoted to coherent signal separation based on curvelet-domain matched filtering and Bayesian separation with sparsity promotion. Applications of these techniques to the primary-multiple wavefield-separation problem on real data will be discussed as well. The third lecture will be devoted towards sparse recovery in seismic modeling and imaging and includes the problem of preconditioning the imaging operators, and the recovery from simultaneous source-acquired data.