Lipschitz stability of the conductivity coefficient as a function of the resolvent.

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We consider the problem of identifying the diffusivity coefficient of an elliptic equation as a function of the resolvent operator. We prove that, within the class of measurables coefficients, bounded above and below by positive constants, the resolvent determines the diffusivity in an unique manner, the inverse mapping from resolvent to the coefficient being Lipschitz in suitable topologies. This result plays a key role when applying greedy algorithms to the approximation of parameter-dependent elliptic problems in an uniform and robust manner, independent of the given source terms.

This is a joint work with Enrique Zuazua.