Unique continuation from Cauchy data in unknown non-smooth domains

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Abstract. We consider a conducting body which presents some (unknown) perfectly insulating defects, such as cracks or cavities, for instance. We perform measurements of current and voltage type on a (known) part of the boundary of the conductor. We prove that, even if the defects are unknown, the current and voltage measurements at the boundary uniquely determine the corresponding electrostatic potential inside the conductor. A corresponding stability result, related to the stability of Neumann problems with respect to domain variations, is also proved. Some applications of these results to inverse problems are presented.