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(54) **SYSTEMS AND METHODS FOR NOISE DETECTION AND RESPONSE**

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(57) **ABSTRACT**
Systems and methods are provided for detecting noise in one or more of samples of a first signal that corresponds to a phase current of a multiphase system, determining to apply a digital noise filter based on the noise, and applying a digital noise filter. Applying the digital noise filter may include generating a reconstructed signal based on two other signals corresponding to respective phase currents of the multiphase system, and outputting the reconstructed signal to replace the one or more samples.

