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(54) **POWER TRANSIENT EVENT DETECTION IN OPTICAL COMMUNICATION SYSTEMS**

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(57) **ABSTRACT**

A power transient event detection system includes a first bank of photodetectors (PDs) located within a first node of an optical communication system. Each PD within the first bank of PDs has a different response time. The system further includes an output signal monitor that monitors signal output from each of the PDs in the first bank and that logs power transient event detection information. A transient event characterizer identifies, based on the logged event detection information, a subset of the PDs in the first bank that observed a power transient event, and determines a duration of the power transient event based on an amount of time that the signal output satisfies low signal criteria for at least one PD in the subset.