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Tauke-Pedretti et al.

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(54) **SEPARATING SEMICONDUCTOR DEVICES FROM SUBSTRATE BY ETCHING GRADED COMPOSITION RELEASE LAYER DISPOSED BETWEEN SEMICONDUCTOR DEVICES AND SUBSTRATE INCLUDING FORMING PROTUBERANCES THAT REDUCE STICTION**

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(71) Applicant: **Sandia Corporation**, Albuquerque, NM (US)

(72) Inventors: **Anna Tauke-Pedretti**, Albuquerque, NM (US); **Gregory N. Nielson**, Albuquerque, NM (US); **Jeffrey G. Cederberg**, Albuquerque, NM (US); **Jose Luis Cruz-Campa**, Albuquerque, NM (US)

(73) Assignee: **Sandia Corporation**, Albuquerque, NM (US)

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(57) **ABSTRACT**

A method includes etching a release layer that is coupled between a plurality of semiconductor devices and a substrate with an etch. The etching includes etching the release layer between the semiconductor devices and the substrate until the semiconductor devices are at least substantially released from the substrate. The etching also includes etching a protuberance in the release layer between each of the semiconductor devices and the substrate. The etch is stopped while the protuberances remain between each of the semiconductor devices and the substrate. The method also includes separating the semiconductor devices from the substrate. Other methods and apparatus are also disclosed.

METHOD OF SEPARATING SEMICONDUCTOR DEVICES FROM A SUBSTRATE

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