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(54) **METHOD FOR PREPARING SEMICONDUCTOR LAYER**

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(57) **ABSTRACT**
A method for preparing a semiconductor layer comprises the following steps: providing a mica substrate; depositing a plurality of semiconductor films on the mica substrate to form a semiconductor substrate; and cooling the semiconductor substrate at a cooling rate to separate the plurality of semiconductor films from the mica substrate to obtain a semiconductor layer, wherein the cooling rate ranges from 10° C./min to 50° C./min. Herein, the plurality of semiconductor films comprise a first semiconductor film and a second semiconductor film, the first semiconductor film is formed at a first temperature, the second semiconductor film is formed at a second temperature, the first temperature is lower than the second temperature, and the first semiconductor film is disposed between the mica substrate and the second semiconductor film.

