# New energy storage silicon wafer

Are silicon nanowires a promising material for energy conversion & storage?
Due to their unique structural, electrical, optical, and thermal properties, silicon nanowires (SiNWs) are attracting immense interest as a promising material for advanced energy conversion and storage applications.

Can thin silicon be used to prepare ultrathin silicon wafers?
In this contribution,we present a thin silicon with reinforced ring (TSRR) structure at the edge region,which can be used to prepare ultrathin silicon waferswith a large area and provide support throughout the solar cell preparation process to reduce the breakage rate.

Can surface-treated thin silicon wafers be electrolyte-free and void-free electrodes?
Here,we demonstrate that surface-treated thin silicon wafers could serve as monolithic additive-free,electrolyte-free,and void-free electrodesthat can achieve high areal capacity at room temperature (~25 °C). A dense solid electrolyte interface could effectively suppress the cracks and pulverization found in the liquid electrolyte.

How is a n-type silicon wafer made?
The fabrication process starts from cleaving an n-type silicon wafer into 2.5 cm × 2.5 cm chips. These are then cleaned using RCA1 (H 2 O 2 -NH 4 OH-H 2 O) and RCA2 (H 2 O 2 -HCl-H 2 O) solution, as well as a Piranha Etch (H 2 SO 4 -H 2 O 2).

How big is a silicon wafer?
All silicon wafers are 4 inches(10 cm) in size and the width of reinforced ring is 3 mm. The first case is self-weight (handling or transferring). Figure 2a shows simplified schematic diagram of thin silicon wafer with a fixed position under the effect of gravity (corresponding to Fig. 1b and c).

How is a silicon wafer made?
Silicon wafer was cut into strips with a width of 1 mm and a length of 100 mm as electrodes, and argon gas was injected into the chamber as a protective atmosphere. The plasma discharge was used at 11 kV. During the process, plasma and arc vaporized silicon rods were generated.

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