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Introduction of a novel method for manufacturing ultrathin silicon ribbon HYUNG WOO CHOI, MOHAMMED DANYAN, DHANESH CHANDRA, GHASSAN JABBOUR[1], Univ of Nevada - Reno — We report on a new and quick (ca. 1 hour!) route for fabricating ultrathin silicon substrate directly from *in-situ* molten silicon by an inductor heater spin-melt based technique. Structural and compositional properties of silicon substrate indicate a pure (without SiO_2, SiC formation) and polycrystalline nature of the fabricated ribbon. Compared to conventional methods for manufacturing thin silicon substrates, including edge stabilized growth (ESG), edge-defined film-fed growth (EFG), ribbon growth on substrate (RGS), etc., our development shows significant thickness reduction. In this regard, we were able to obtain unprecedented 20 μm thick samples, without any supporting carrier. We anticipate our high-speed low cost fabrication approach of silicon substrates to have a great potential in photovoltaic and semiconductor industry.

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