

## Study of Peeling of Single Crystal Silicon by Intense Pulsed Ion Beam

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The surface peeling process induced by intense pulsed ion beam (IPIB) irradiation was studied. Single crystal silicon specimens were treated by IPIB with accelerating voltage of 350 kV current density of 130 A/cm<sup>2</sup>. It is observed that under smaller numbers of IPIB shots, the surface may undergo obvious melting and evaporation. As the number of shots increased, surface peeling may occur. Numerical thermal and me-

chanical analysis was carried out and it is deduced that under IPIB irradiation, cracks may be induced by the thermal-stress. Cracks on the surface may be smoothed by the surface melting under IIPB irradiation while in deeper region of the target, cracks may be preserved and keep growing under series of IPIB, finally lead to surface peeling from deeper region under the surface.