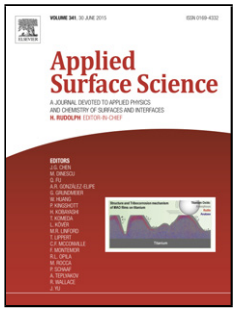

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Dewetting induced Au-Ge composite nanodot evolution in SiO_2

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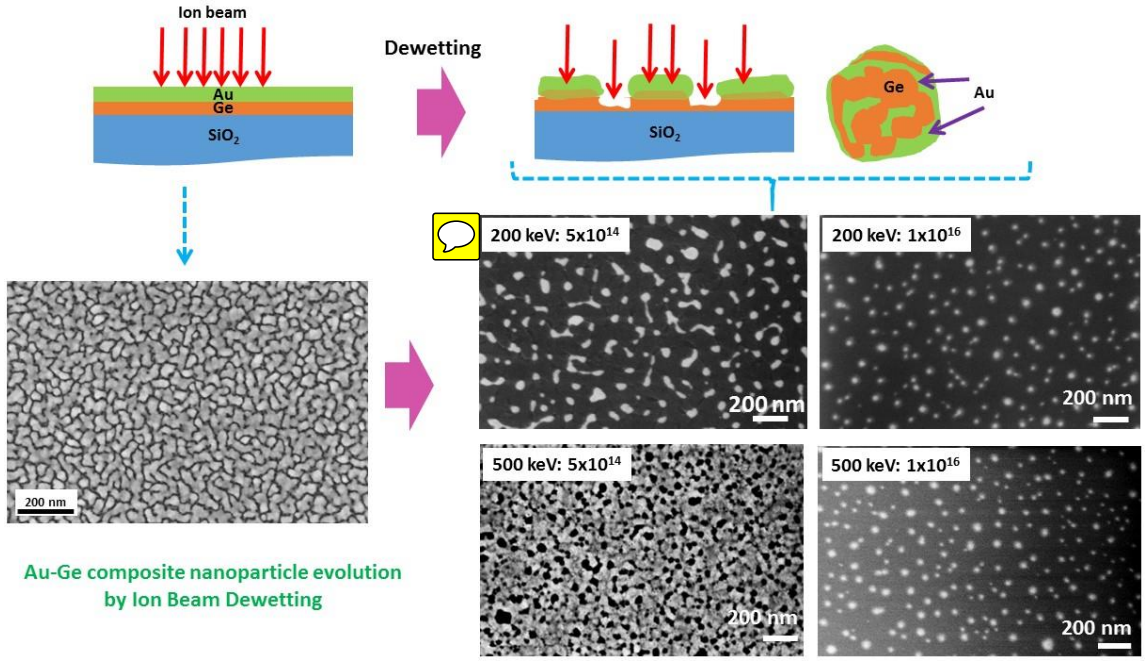
Graphical Abstract



Highlights

- Self-organized evolution of morphology under ion irradiation of a bilayer of Au and Ge on insulator surface from nucleating patches, extended to islands and finally Au-Ge composite nanodot array develops.
- Numerical simulations based on the unified thermal spike model, demonstrates formation of molten zones around the ion track in the target.
- The observed evolution is effect of ion beam induced dewetting of Au top which combines with sputter erosion and diffusion of the bilayer to synthesize metal-semiconductor composite nanodots .

Abstract