Parameter dependent fabrication of Chromium nano-structures on Au(111) surface

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Highlights

- Long range ordering of Cr nano-islands of circular and rectangular shapes are observed at room temperature on locally stepped vicinal surface regions of Au(111) with narrow terraces.
- Deposition of Cr at elevated substrate temperatures lead to (i) formation of triangular islands and spiral dislocations up to about 2 ML coverage (ii) at higher coverages of 3-4 ML, huge elongated ridges that are up 260nm in length, 20 nm in width and up to 3 nm height are observed.
- High temperature annealing of a thick (7ML) Cr layer results in shape transition from spindle shaped clusters to relatively flat stripe-like structures.