

Surface Diffusion on GaN (0001)

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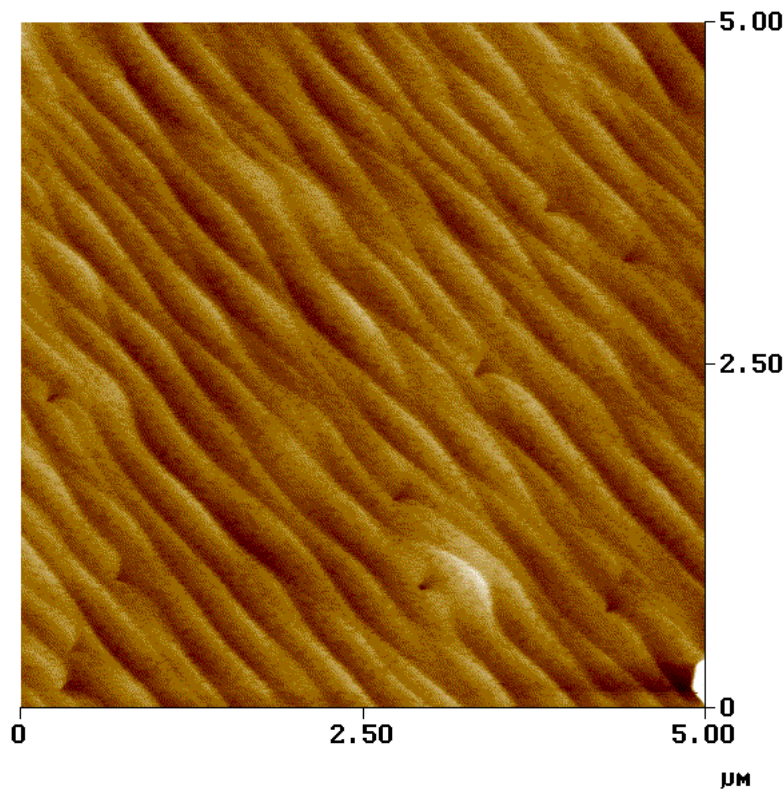
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- please contact authors for preprints and referencing

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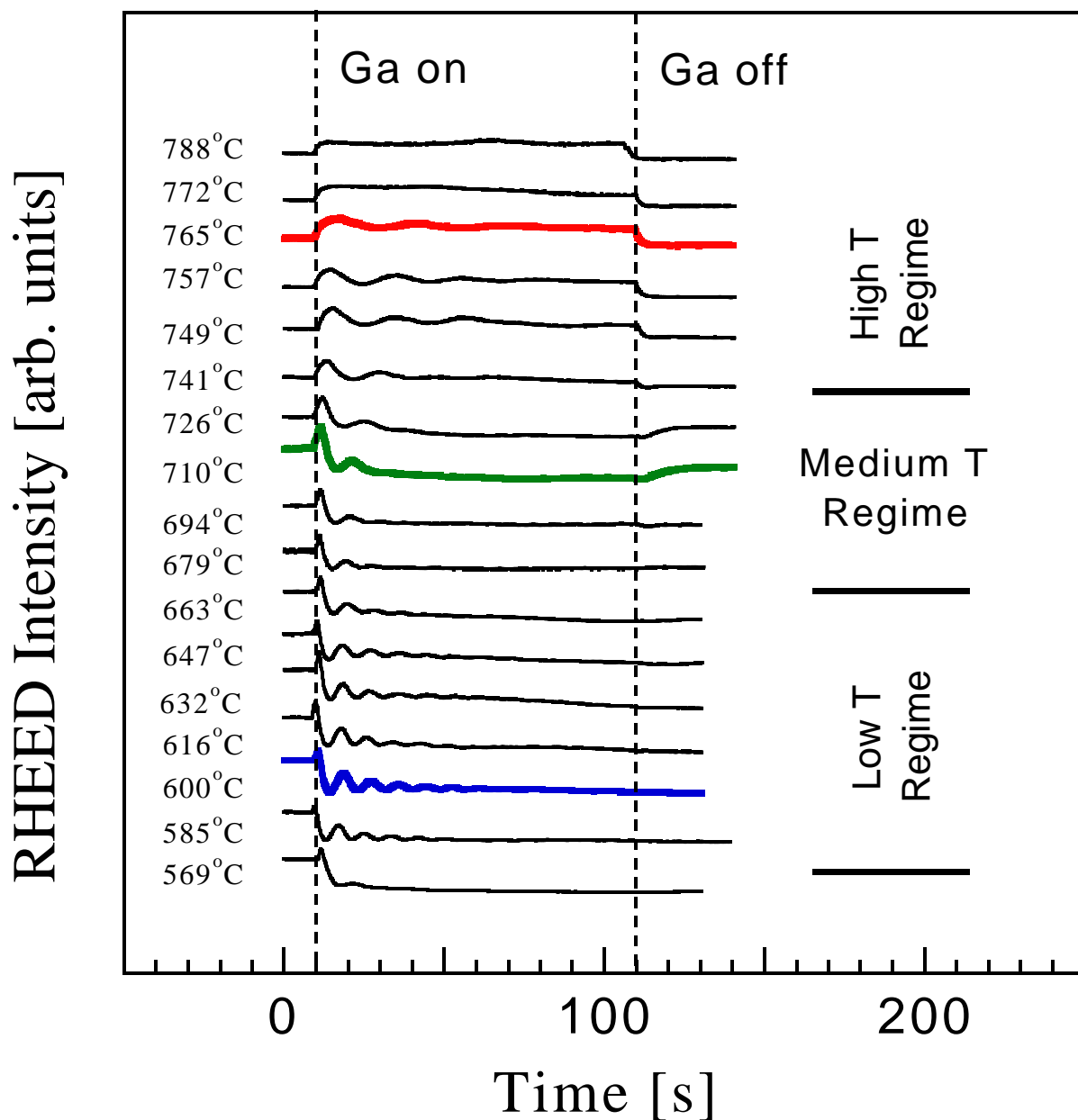
Main Points



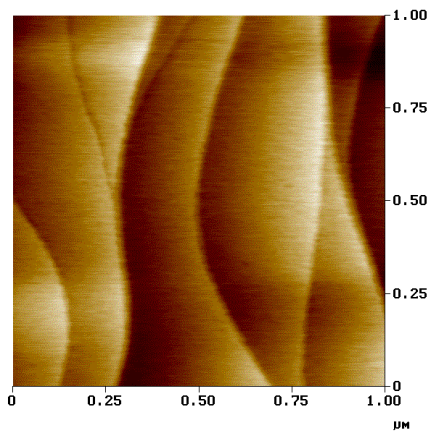
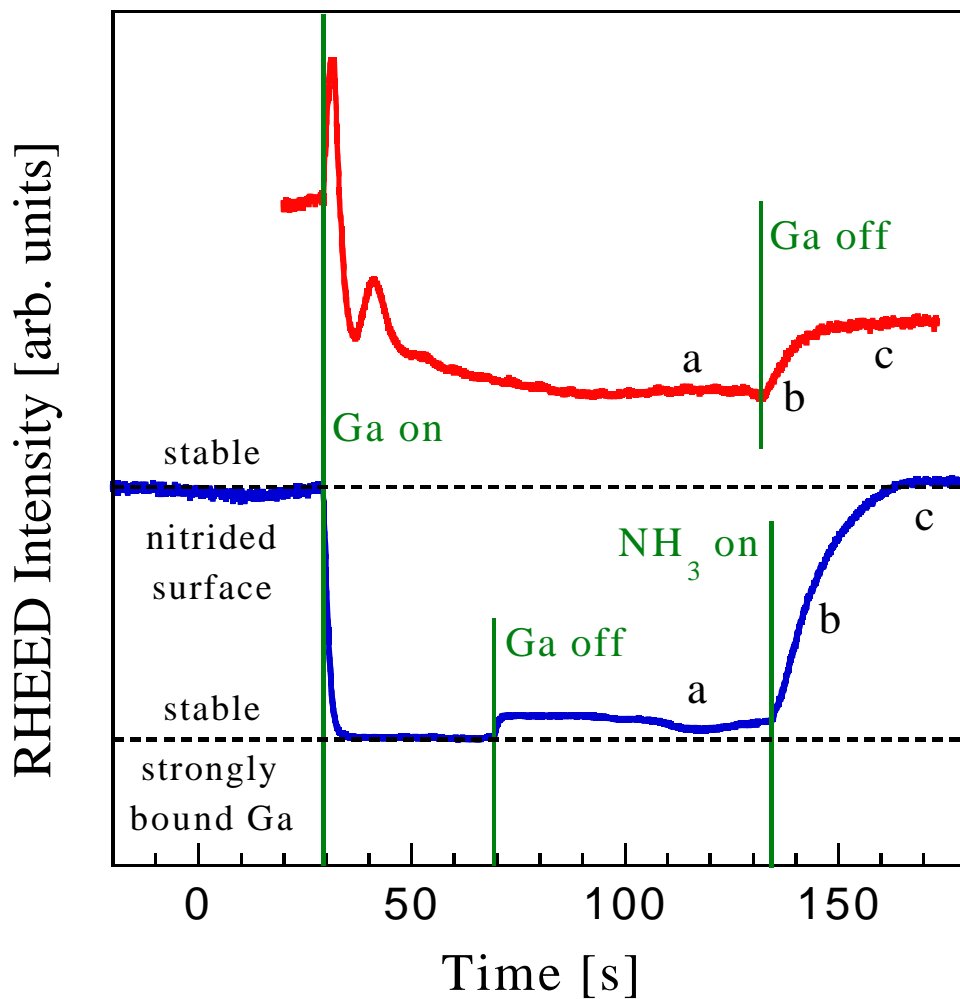
Macrosteps, around 5 c
Steady State

- New Growth Model
- N-terminated GaN(0001)
→ relatively reactive - low Ga diffusion
- Ga-terminated GaN(0001)
→ relatively unreactive - high Ga diffusion

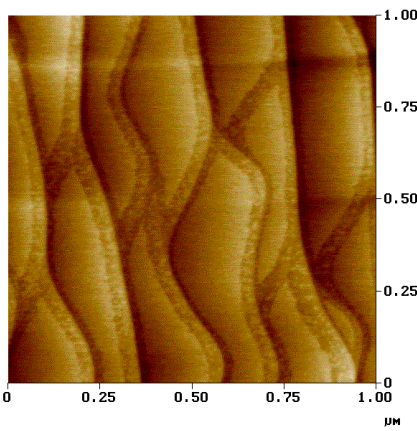
3 Regimes: RHEED Oscillations versus T



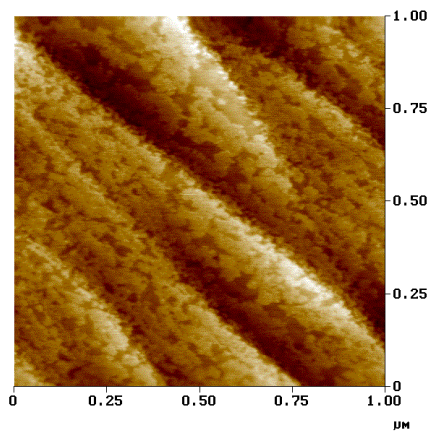
Medium T Regime



a



b



c

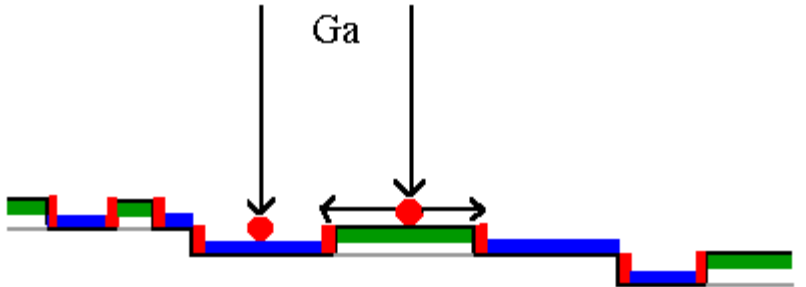
Model

Annealed

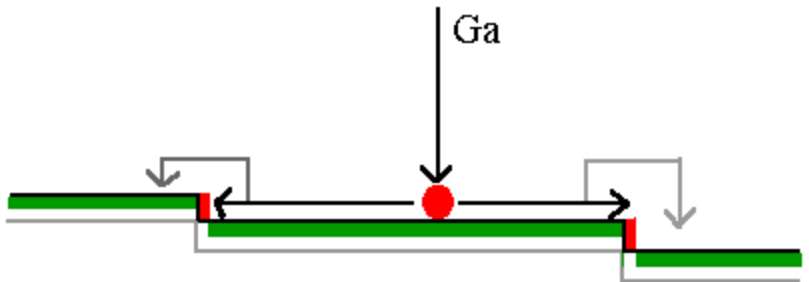


Ga On

Transient



Steady State



Ga Off

Denuding



Annealed



New Growth Model

- Denuded Zones = N-terminated GaN(0001)
→ relatively reactive - low Ga diffusion
- Filled Zones = Ga-terminated GaN(0001)
→ relatively unreactive - high Ga diffusion
- Excess NH_3 :
Ga Termination → Step Flow Window
- Surface Diffusion Lower Limit is 1.1 eV
- Macrosteps due to Growth Instability ?