

Fig. 1. RHEED images of the (a, b) 1-step $\text{Sc}_{0.40}\text{Al}_{0.60}\text{N}$ sample, (c, d) 2-step $\text{Sc}_{0.32}\text{Al}_{0.68}\text{N}/\text{Sc}_{0.40}\text{Al}_{0.60}\text{N}$ sample, and (e, f) graded $\text{Sc}_{0.32 \rightarrow 0.40}\text{Al}_{0.68 \rightarrow 0.60}\text{N}/\text{Sc}_{0.40}\text{Al}_{0.60}\text{N}$ sample taken (a, c, e) just after nucleation and (b, d, f) after growth of the 150-nm total-thickness film.

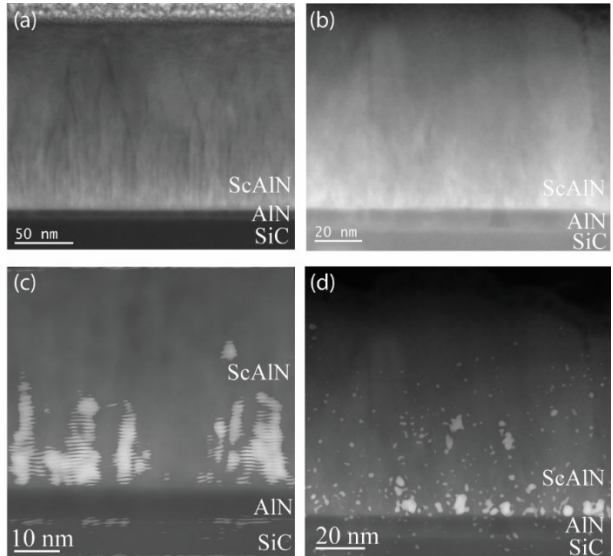


Fig. 2. (a, b) Transmission electron micrographs of a 1-step and graded start $\text{Sc}_{0.40}\text{Al}_{0.60}\text{N}$ sample, respectively. (c, d) Bragg-filtered images of the same regions on each sample highlighting the presence of rock-salt grains.

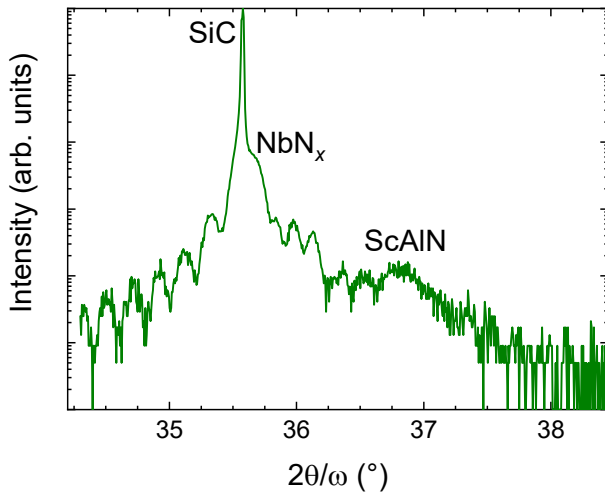


Fig. 3. $2\theta/\omega$ XRD scan about the 0002 reflection of a $\text{Sc}_{0.40}\text{Al}_{0.60}\text{N}$ sample having a graded initiation layer, an AlN interlayer and an NbN epitaxial metal layer grown on SiC.

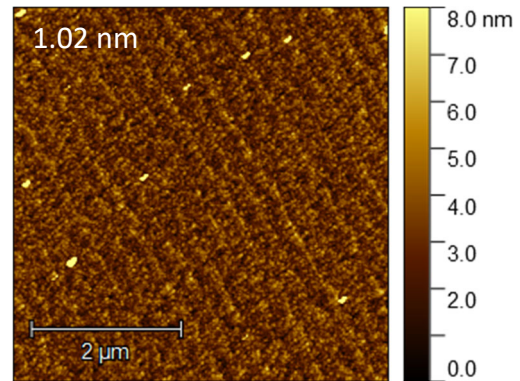


Fig. 4. Atomic force microscopy image of a $\text{Sc}_{0.40}\text{Al}_{0.60}\text{N}$ sample having a graded initiation layer, an AlN interlayer and an NbN epitaxial metal layer grown on SiC. The rms roughness from the $5 \mu\text{m} \times 5 \mu\text{m}$ scan was 1.02 nm.