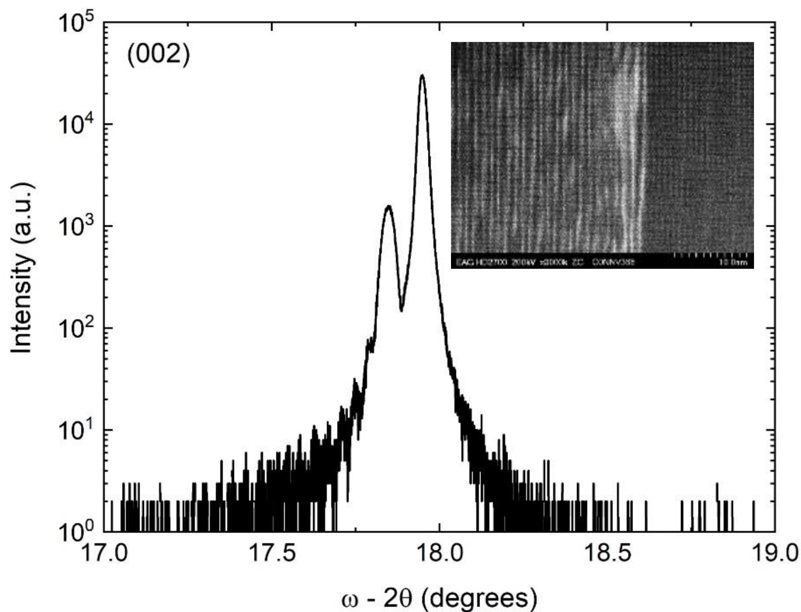


Figure 1: XRD coupled scan of the first attempt at a think layer SPSL. Shows faint Pendelosung fringes. Inset image shows a cross-sectional TEM image of the sample, highlighting the strong ALN/GaN intermixing.

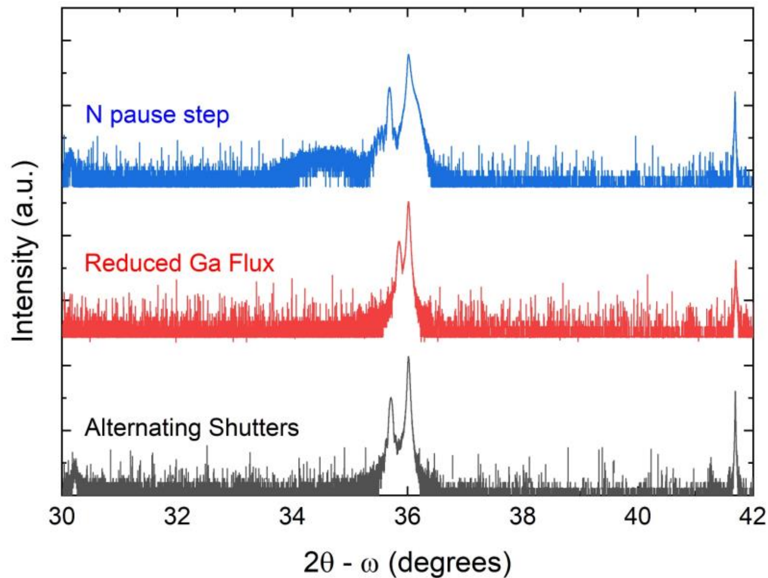
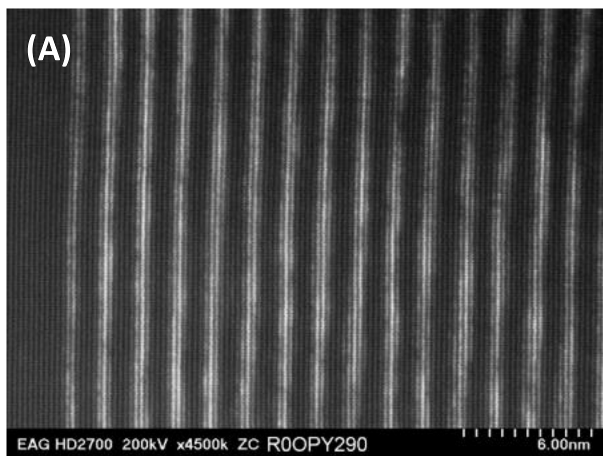
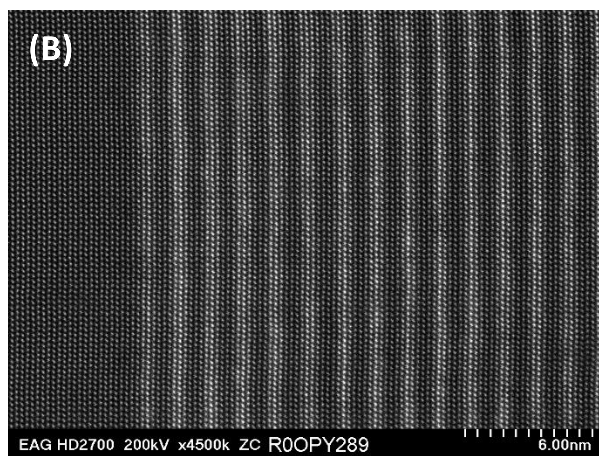


Figure 2: XRD coupled scans of the samples using various growth conditions used. The introduction of a N only pause step generates 2 regions of SPSL uniformity.





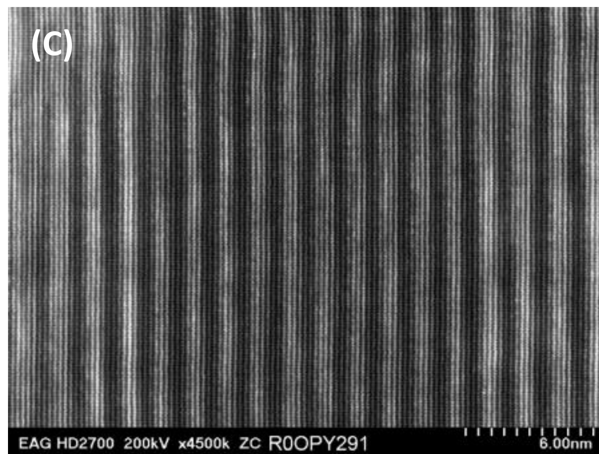


Figure 3: TEM images of the various altered growth conditions. A) Grown using alternating Al and Ga shutters. Resulting AlN and AlGaN layer thicknesses are approximately 5 ML and 3 ML respectively B) Grown using half the normal Ga flux. Resulting AlN and AlGaN layer thicknesses are the same as (A) but there is more variation in the AlN thickness C) Grown using alternating shutter conditions with an additional N-pause step. Shows 2 regions: strong intermixing (left) and strong layer uniformity (right). AlN and AlGaN layer thicknesses are 3 ML and 4 ML respectively.