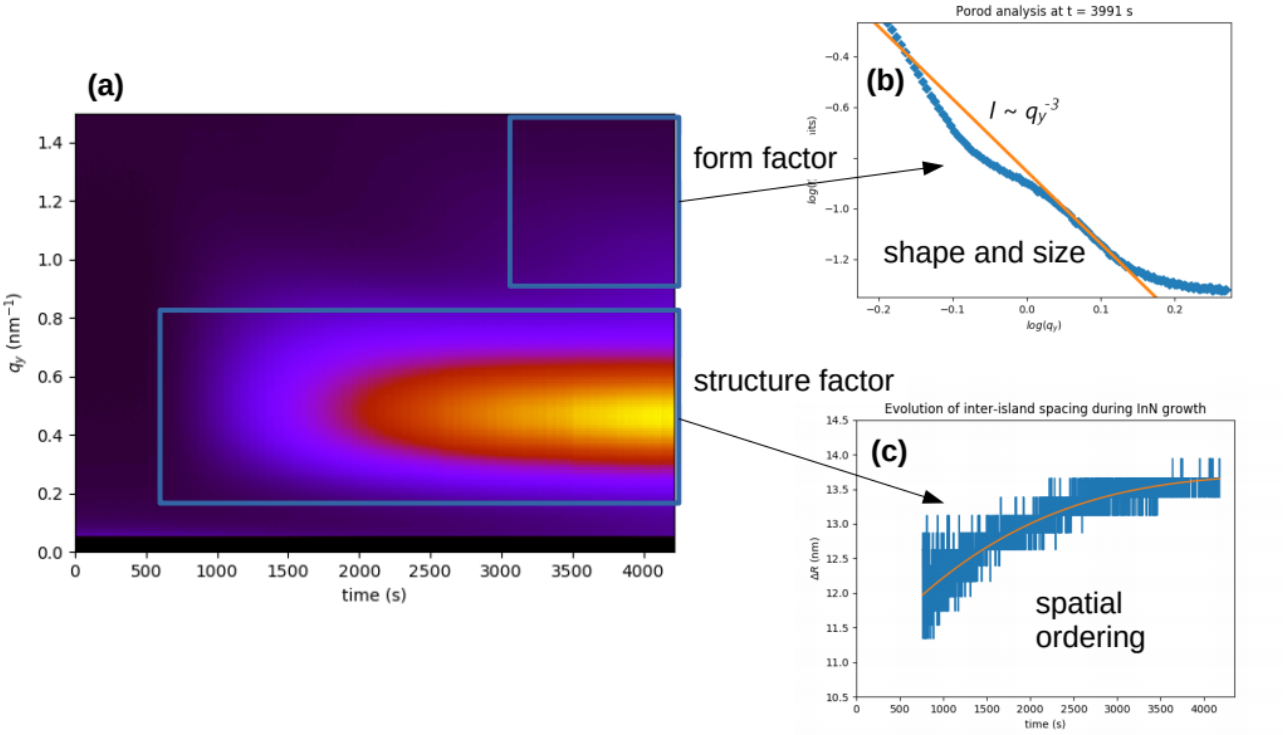

FIG. 1. Time-resolved grazing incidence small angle x-ray scattering data in which the selected out-of-plane exit angle is equivalent to the critical angle of the InN film, leading to an enhancement of the scattering intensity. For x-ray wavelength λ, the in-plane momentum transfer q_y is related to the in-plane exit angle 2θ by $q_y = 2\pi/\lambda * \sin(2\theta)$ for small out-of-plane exit angles. **(a)** Evolution of GISAXS intensity distribution during the first 4000 seconds of growth. The higher in-plane scattering angles (higher q_y) correspond to shorter in-plane length scale features, whereas lower angles (lower q_y) correspond to longer length scale features. The intensity distribution at high q_y is dominated by the form factor, which describes the mean shape and size of the InN islands. As shown in **(b)**, the island shape can be determined by power law fit of the intensity decay. The intense peak at $q_y \sim 0.5$ nm^{-1} is dominated by the structure factor, which describes the mean center-to-center distance between InN islands. As shown in **(c)**, this inter-island spacing at a particular time can be approximated from the q_y value of the structure factor maximum.