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**Catalyst-free Indium Nitride Nanostructures Grown by Plasma-Assisted MOCVD** DEVER NORMAN, SAMIR HAMAD, HYE-WON SEO, Department of Physics and Astronomy, University of Arkansas at Little Rock — The growth of Indium Nitride nanostructures directly on n-type Si (111) substrate was achieved without ammonia using nitrogen plasma as sole atomic nitrogen contribution. In this study we determine the growth conditions for optimal structural characteristics adjusting plasma generation power, substrate temperature, and III/V ratio. The structures formed nucleation sites directly interspersed on Si substrate without the use of hetero catalysis. SEM observations show that structurally the nanostructures range from narrow and horizontal with a high 1-dimensional consistency in width and length, to vertical and conical. Effects of the growth parameters along with the growth mechanism of nanostructures will be discussed.

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