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Structural and Electronic Properties of Mn_xGa_{1-x}Monolayers on Wurzite GaN(0001) Surface KANGKANG WANG, ABHIJIT CHINCHORE, MENG SHI, ARTHUR SMITH, Ohio University — Ferromagnetic (FM) metal/semiconductor bilayers are of great interest due to their importance in novel spintronics applications, such as spin injection and spin light-emitting diodes[1]. It has been reported[2] that δ-MnGa, a FM alloy with T_C higher than room temperature (RT), can be grown epitaxial on top of w-GaN(0001) with sharp interface and controllable magnetism. Using molecular beam epitaxy, we deposit up to 3 monolayers (ML's) of Mn onto w-GaN(0001) "1x1" surface, which forms Mn_xGa_{1-x} with x varying from 0 to $\sim$ 0.6. Mn-induced surface reconstructions and formation of Mn_xGa_{1-x}crystalline phases are observed by reflection high-energy electron diffraction (RHEED), Auger electron spectroscopy as well as *in-situ* RT-STM. The data suggests large-period reconstructions upon deposition of $<$ 0.25ML Mn and quick formation of δ-MnGa at $\sim$1 ML of Mn. Structural and electronic properties at representative stages will be presented, as well as possible magnetic properties of MnGa ML's. This work has been supported by DOE (Grant No.DE-FG02-06ER46317) and NSF (Grant No.0304314). Equipment support from ONR is also acknowledged. [1] S.A.Wolf *et al*, Science **294**, 1488 (2001) [2] E.Lu *et al*, Phys.Rev.Lett. **97**, 146101 (2006) K.K.Wang *et al, M*ater.Res.Soc.Symp.Proc.1118-K06-06 (2009)

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