Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

IR enhancement and the surface potential of n-alkanethiol SAMs on GaAs(001) GREGORY M. MARSHALL, Department of Electrical and Computer Engineering, Université de Sherbrooke, Sherbrooke, CAN, GREGORY P. LOPINSKI, Steacie Institute for Molecular Sciences, National Research Council of Canada, Ottawa, CAN, FARID BENSEBAA, Institute for Chemical Process and Environmental Technology, National Research Council of Canada, Ottawa, CAN, JAN J. DUBOWSKI, Department of Electrical and Computer Engineering, Université de Sherbrooke, Sherbrooke, CAN — n-Alkanethiol self-assembled monolayers (SAMs) were prepared on the GaAs(001) surface according to [1]. FTIR modal analysis of the CH_2 stretching mode region (2800-3000 cm^{-1}) verified SAM structural coherence, revealed evidence of an assembly threshold and allowed the absorption coefficient of the SAM phase to be directly measured. A 6x enhancement factor was observed relative to coefficients derived from the liquid and polycrystalline phases. This effect is reviewed in terms of the molecular order and is largely attributed to the chemical properties of the interface [2]. Confirmation is provided by Kelvin Probe measurement of the sheet dipole potential, interpreted in terms of the Cooperative Molecular Field Effect [3]. [1] McGuiness et al., J. Am. Chem. Soc. 128, 5231 (2006). [2] Marshall et al., submitted. [3] Cahen et al., Adv. Funct. Mater. 15, 1571 (2005).

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Date submitted: 21 Nov 2008 Electronic form version 1.4