

Supporting Information

High-Performance Solution-Processed Amorphous Zinc Indium Tin Oxide Thin-Film Transistors with Organic Gate Dielectrics

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Table S-1. XPS binding energy values for photoemission peaks from a-ZnIn₄Sn₄O₁₅ films.

Element	Peak Position (eV)
Zn	1022.2
In	444.9
Sn	486.8
O1s	529.9
O1s	531.2
O1s	531.9

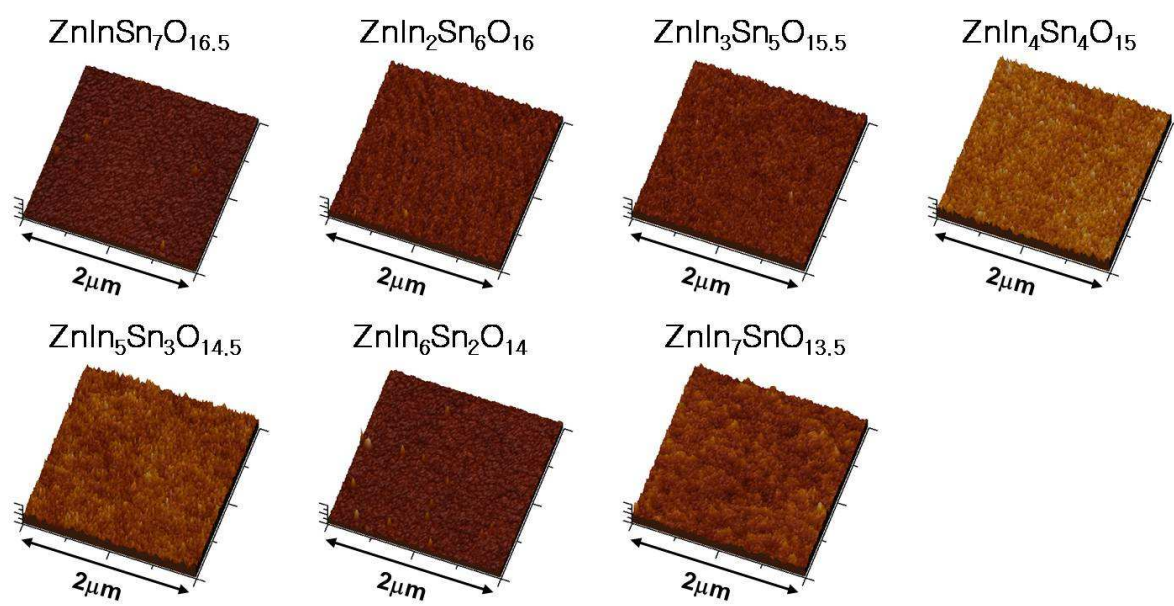


Figure S-1. AFM images of a-Zn-In-Sn-O films on native oxide/n++ doped Si substrates

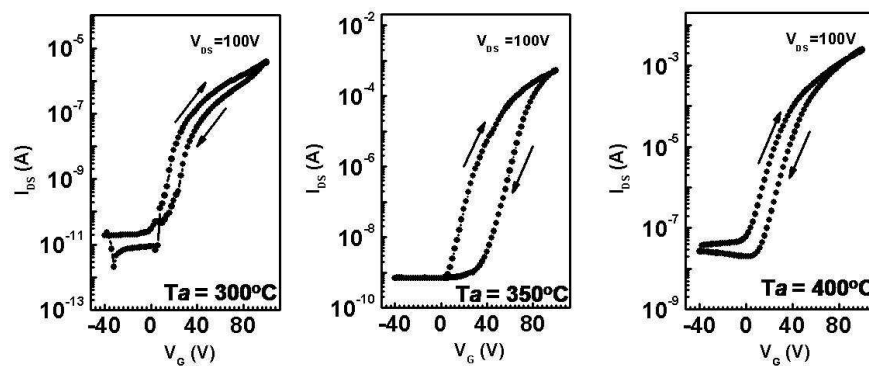


Figure S-2. Representative a-Zn-In-Sn-O film TFT transfer plots on Si/SAND substrates.

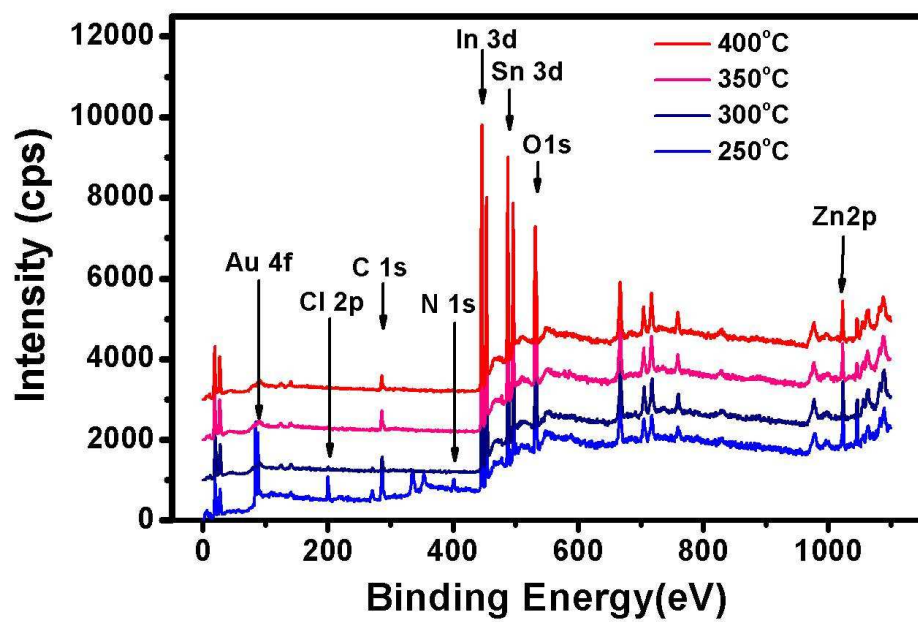


Figure S-3. XPS spectra of a 10 nm a-ZnIn₄Sn₄O₁₅ film after annealing at the indicated temperatures.

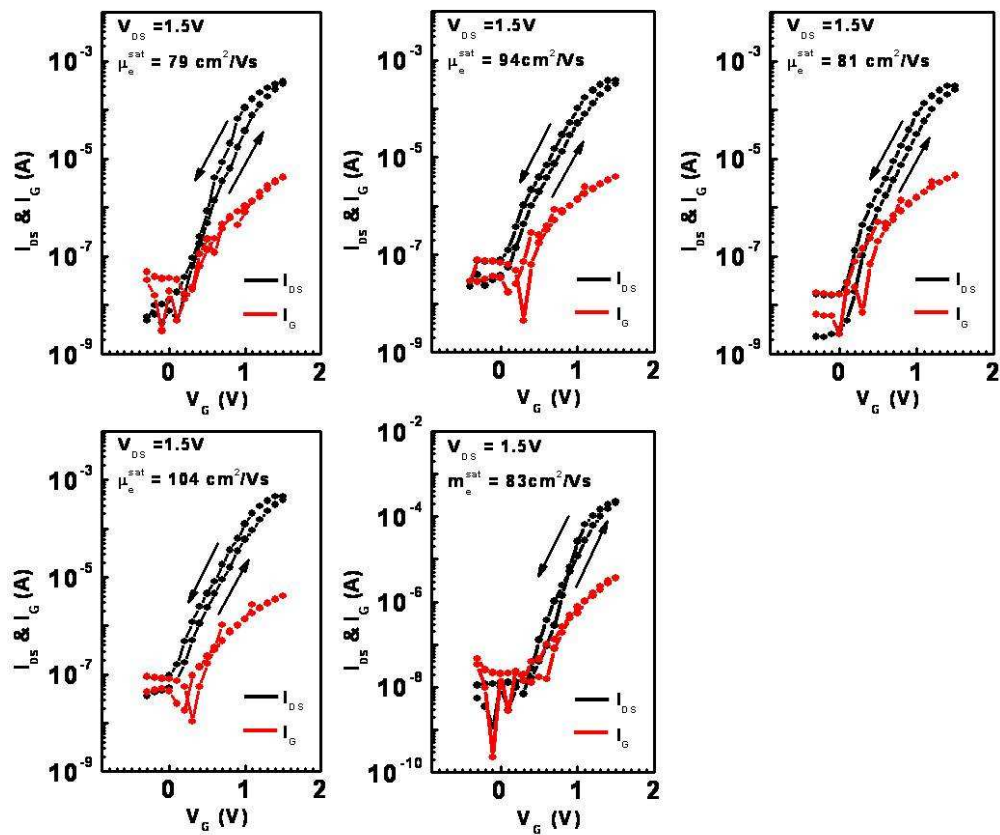


Figure S-4. Representative SAND-based TFT transfer plots with RIE patterned $a\text{-ZnIn}_4\text{Sn}_4\text{O}_{15}$ films.

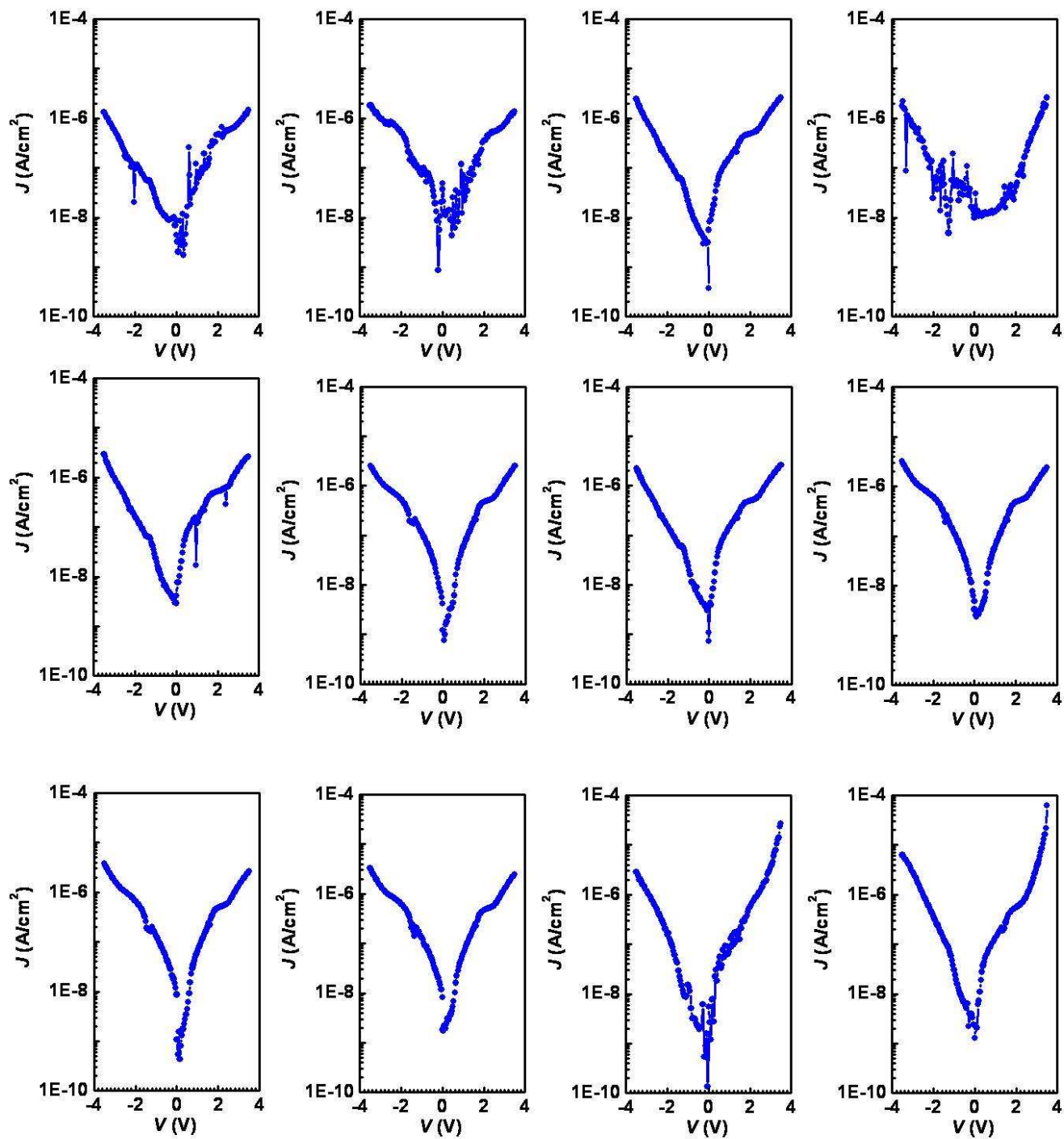


Figure S-5. Representative leakage current measurements for Au ($100 \times 100 \mu\text{m}^2$)/a-ZnIn₄Sn₄O₁₅/SAND/n++Si capacitors where the semiconductor films were patterned by RIE.

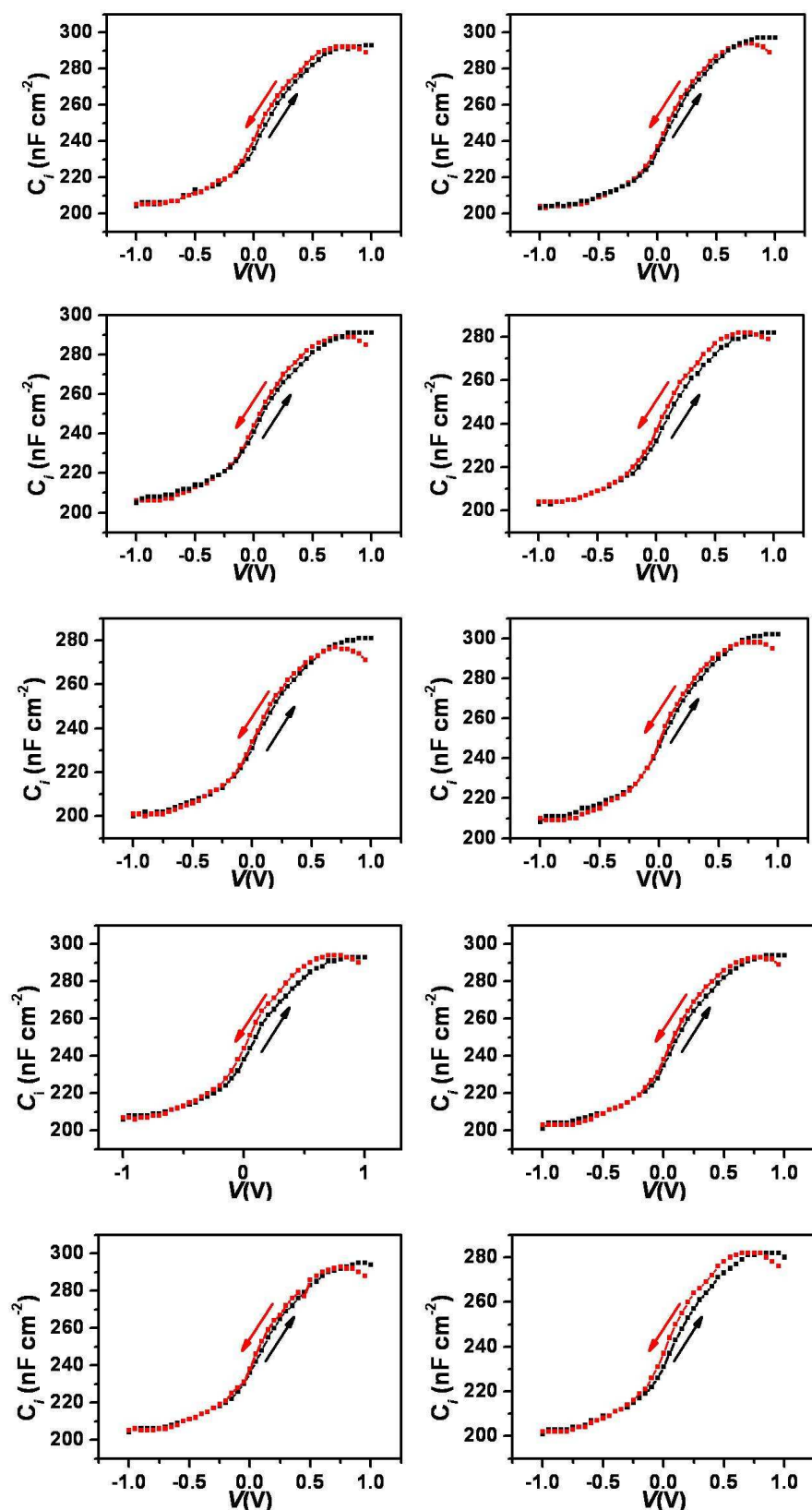


Figure S-6. Representative capacitance-voltage measurements for Au ($100 \times 100 \mu\text{m}^2$)/a-ZnIn₄Sn₄O₁₅/SAND/n++Si capacitors where the semiconductor films were patterned by RIE. The working frequency is 10 KHz.

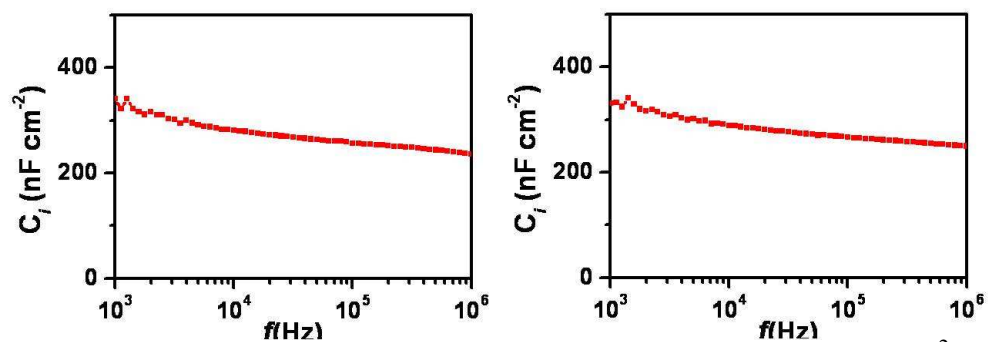


Figure S-7. Representative capacitance-frequency measurements for Au ($100 \times 100 \mu\text{m}^2$)/a-ZnIn₄Sn₄O₁₅/SAND/n++Si capacitors where the semiconductor films were patterned by RIE. The working voltage is 1.0 V.

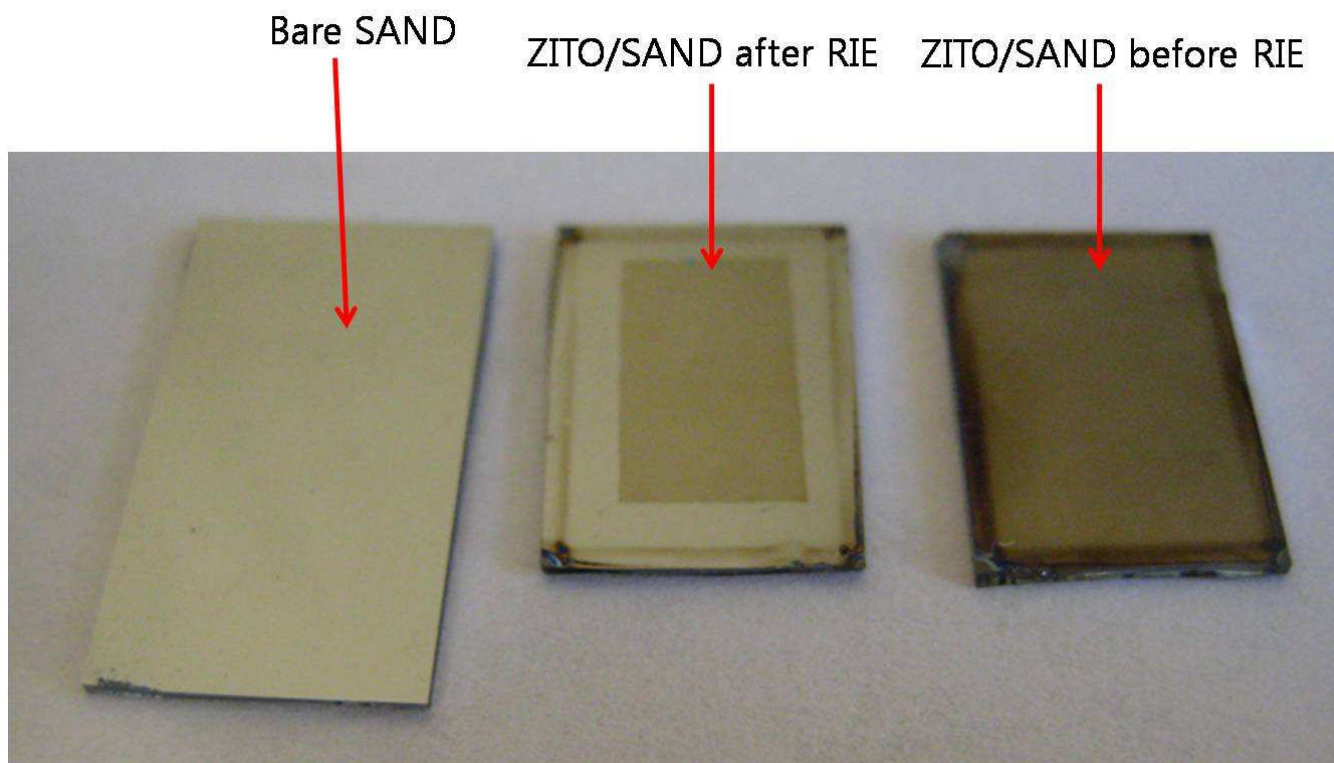


Figure S-8. Representative images for patterned $\alpha\text{-ZnIn}_4\text{Sn}_4\text{O}_{15}$ films on SAND before and after the reactive ion etching (RIE) process.

Complete citation for reference #1c:

[1c] Reuss, R. H.; Chalamala, B. R.; Moussessian, A.; Kane, M. G.; Kumar, A.; Zhang, D. C.; Rogers, J. A.; Hatalis, M.; Temple, D.; Moddel, G.; Eliasson, B. J.; Estes, M. J.; Kunze, J.; Handy, E. S.; Harmon, E. S.; Salzman, D. B.; Woodall, J. M.; Alam, M. A.; Murthy, J. Y.; Jacobsen, S. C.; Olivier, M.; Markus, D.; Campbell, P. M.; Snow, E. *Proc. IEEE* **2005**, 93, 1239.