

InP-Based Material Etch using Unaxis VLR tool

		Recipe 1 (Mesa)	Recipe 2 (Deep Mesa)	Recipe 3 (Deep Hole, AR>10 , $\Phi\sim 0.24\mu\text{m}$)	Recipe 4 (Post)	Recipe 5 (Mesa)
Pressure (mT)		7	7	1	5	1.4
Power (W)	Bias	100	75	250	125	125
	ICP	500	900	950	900	800
Gas Flow-Rate (sccm)	Cl ₂	10	15	2.5	20	7.4
	N ₂	70	45	0	60	11.6
	Ar	0	0	12.5	0	2
Etch Rate ($\mu\text{m}/\text{min}$)		0.27 (InP)	0.42 (AlInGaAs/AlInAs)	N/A (InP)	0.52 (InP)	0.69
Etch Mask		SiO ₂	SrF ₂	SiO ₂	SiO ₂	SiO ₂
Etch Selectivity		7	120	N/A	13	9.3
Chuck Temperature (°C)		200	200	200	200	200

Figure 1. InP-based material etch profile using Recipe 1: (a) InP (N. Cao); (b) and (c) InGaAsP/InP (J. Raring).

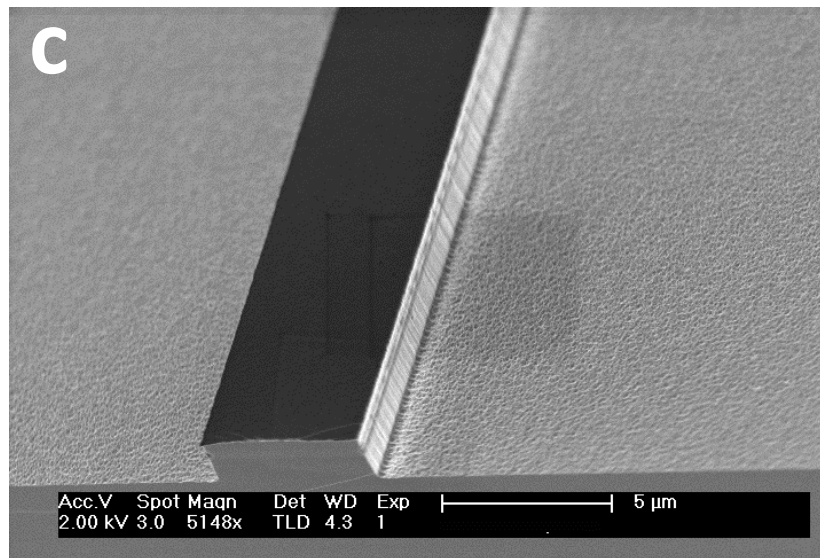
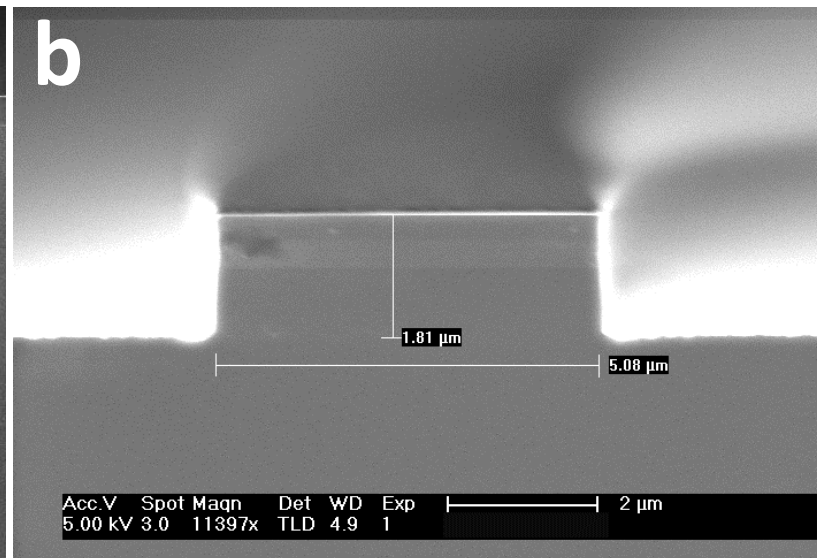
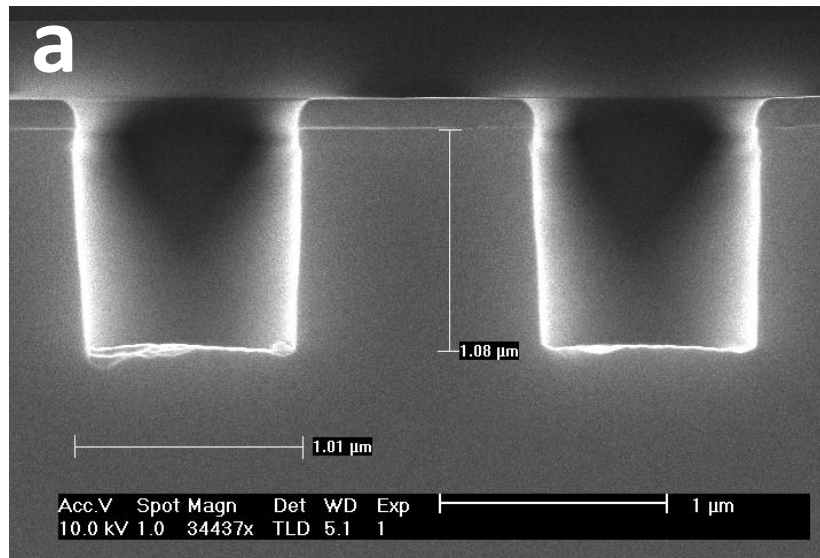


Figure 2. InP-based material etch profile using Recipe 2: (a) and (b) InGaAsP/InAlAs 10- μm high pillars (R. Koda).

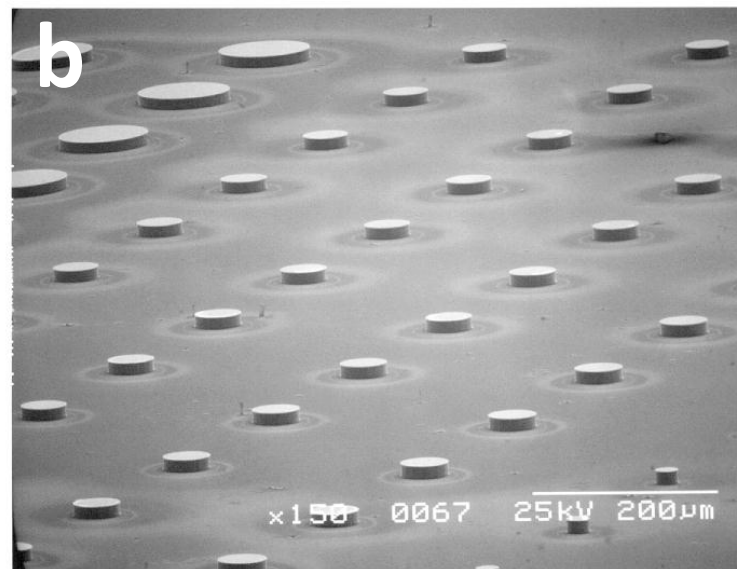
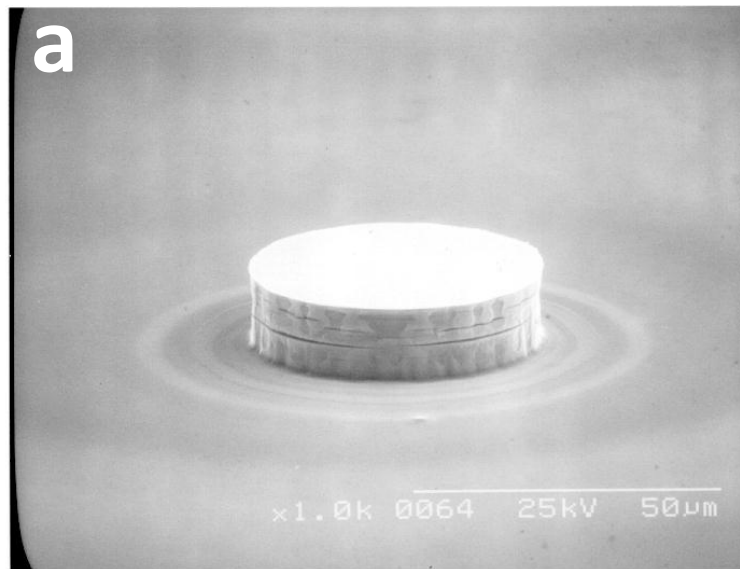


Figure 3. InP-based material etch profile using Recipe 3: InP deep-hole (aspect ratio>10, M. Davanco).

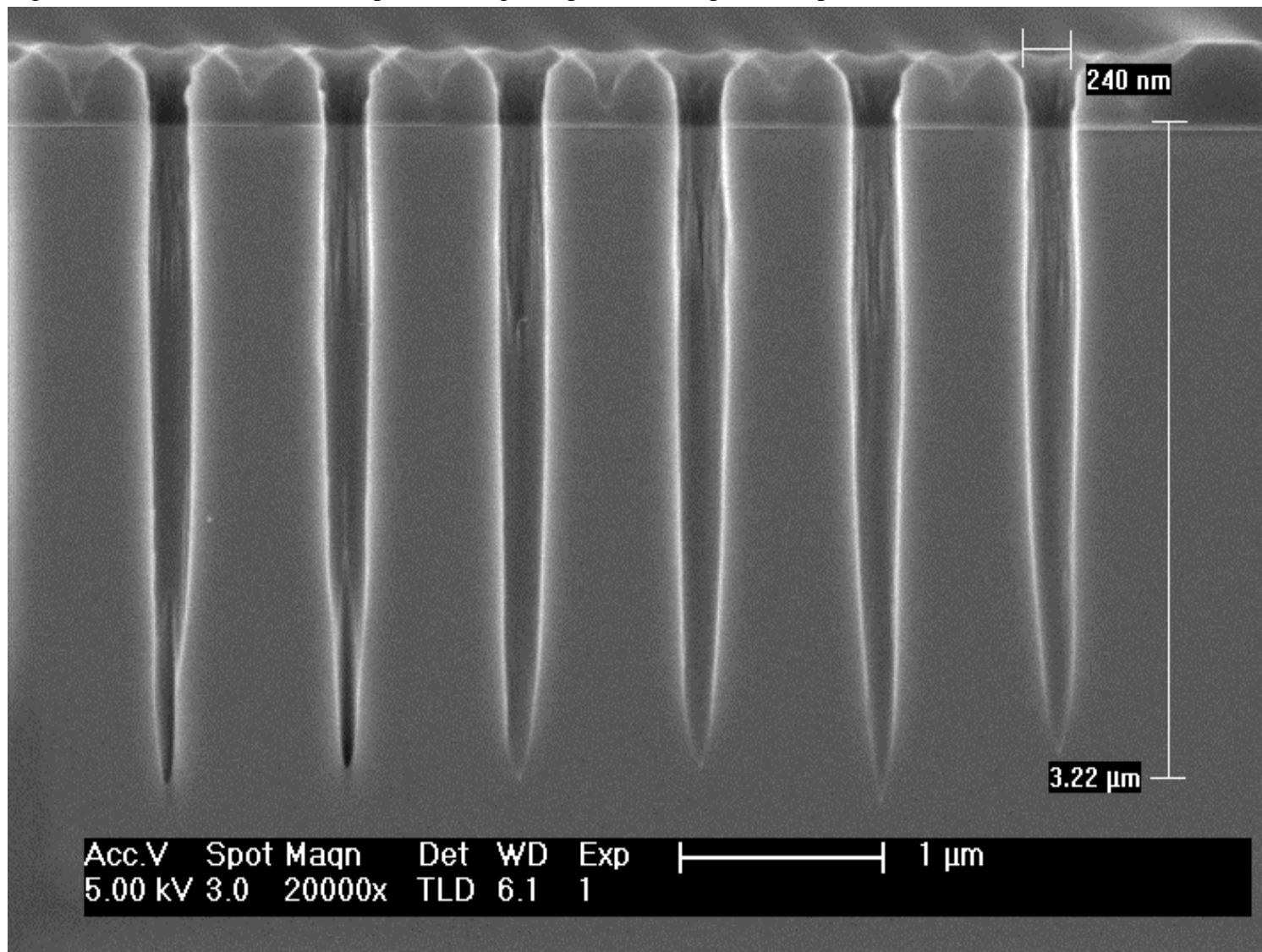


Figure 4. InP-based material etch profile using Recipe 4: InP Post (Aimin).

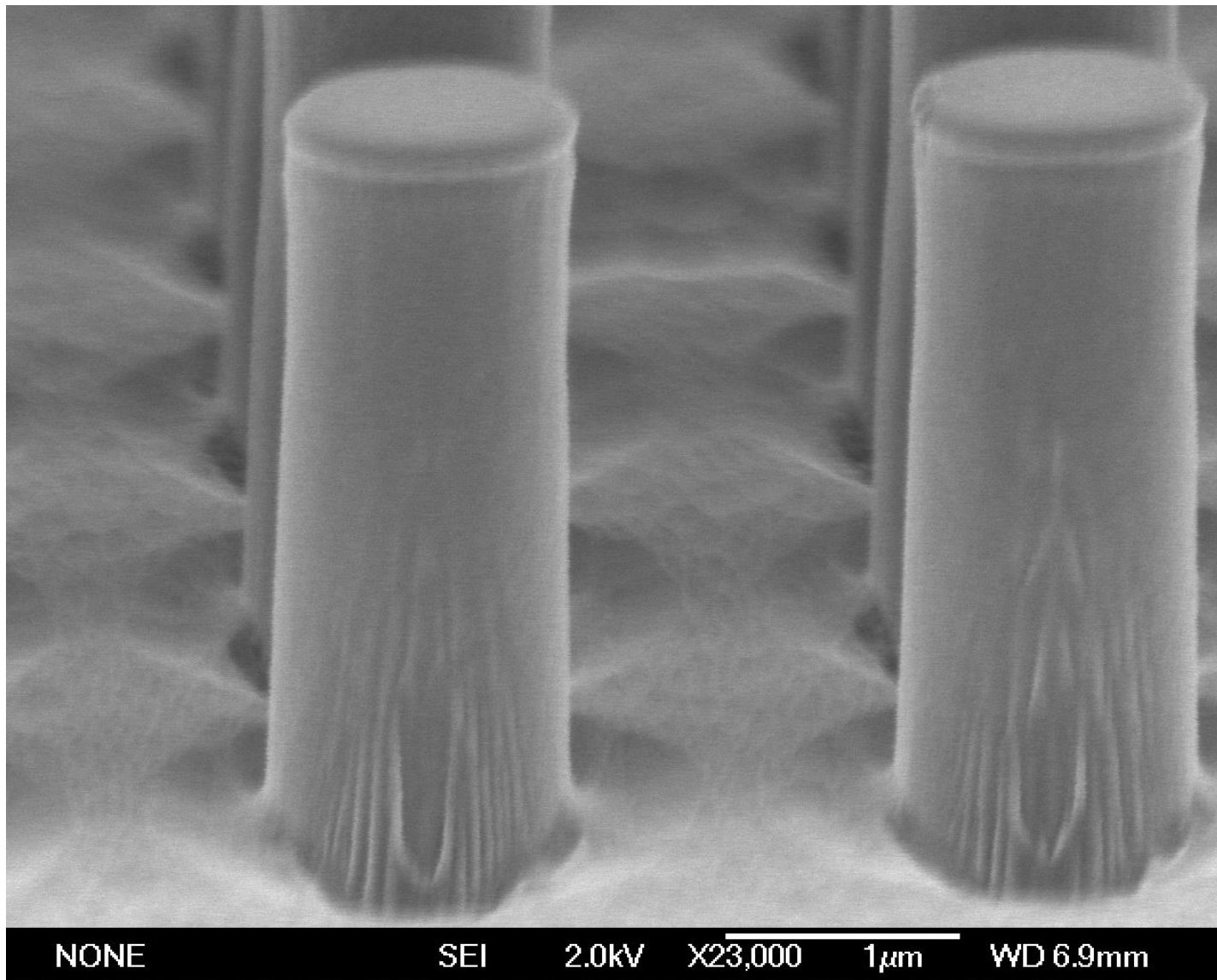


Figure 5. InP-based material etch profile using Recipe 5: (a)-(e) InP (N. Cao).

