Summary of MBE runs grown on (mostly) InP substrates

MBE RUN #	MBE Date	PROC. SAMPLE #	DESCRIPTION	COMMENTS
576	11/4/89		InAlAs/InGaAs DBRTD; 50/50/50 Å	
585	15/5/89		AlAs/InGaAs 1000Å DR QWITT	
589	16/5/89		InAlAs/InGaAs 46Å Single Barrier	
599	23/5/89		InGaAs epi. doped Si(22.8)	n = 2.5e18, μ = 2500
600	24/5/89		InGaAs epi doped ?	
616	30/5/89		InGaAs epi doped ?	thickness = 1.93 mm
732	6/8/89		InAlAs epi undoped	grown on Blk # 3-1
750	24/8/89		InAlAs/InGaAs DBRTD 50/50/50 with 150Å spacers	
826	20/10/89		InAlAs/InGaAs sngl barrier 102 ML	Gave to Carl
827	20/10/89		InAlAs/InGaAs sngl barrier 17 ML	Gave to Carl
1000	30/5/90	1000AVKR 1000BVKR	AlAs/InGaAs 1000Å DR QWITT	Copy of Fonstad's structure
1058	13/7/90	1058AVKR	AlAs/InGaAs Baseline DBRTD; 7/16/7 ML	
1059	13/7/90	1059AVKR	AlAs/InGaAs 1000Å DR QWITT	
1068	20/7/90		?	
1069	20/7/90		AlAs/InGaAs 1000Å DR QWITT	
1087	31/8/90	1087AVKR	AlAs/InGaAs Baseline DBRTD	
1107	7/9/90		AlAs/InGaAs 1000Å DR QWITT	
1133	20/9/90	1133AVKR	AlAs/InGaAs 1000Å DR QWITT Si (21.2)	QWITT mode: Jp=5.1 kA/sq. cm, PVCR=16.1, DV=1.3 V, RF: 37% eff. @ 1 GHz
1134	20/9/90	1134AVKR	AlAs/InGaAs 2000Å DR QWITT Si (21.2)	QWITT mode: Jp=5.1 kA/sq. cm, PVCR=15.8, DV=2.1 V, RF: 45% eff. @ 1 GHz, Obtained 20 mW (11% eff.) @ 1 GHz.
1358	18/1/91		InGaAs epi	
1374	26/1/91	1374AVKR	AlAs/InGaAs Baseline DBRTD	
1375	26/1/91	1375AVKR	AlAs/InGaAs 1000Å DR; Si (22.5)	
1407	5/2/91	1407AVKR	AlAs/InGaAs 1000Å DR; Si (22.3)	
1408	5/2/91	1408AVKR	AlAs/InGaAs 1000Å DR; Si (22.0)	
1409	5/2/91	1409AVKR	AlAs/InGaAs 1000Å DR; Si (21.5)	
1416	9/2/91	1416AAJT	AlAs/InGAs DBRTD on 15ML AlAs liftoff layer	Gave to Alwin
1417	9/2/91	1417AVKR 1417BVKR	50Å AlAs/InGaAs single barrier with Si (21.5) 1000Å DR on one side	
1477	3/4/91	1477AVKR	5 ML AlAs/InGaAs single barrier with Si (21.75) 1000Å DR on bottom	
1478	3/4/91	1478AVKR	11 ML AlAs/InGaAs single barrier with Si (21.75) 1000Å DR on bottom	
1486	3/5/91		1 μm InGaAs epi	
1592	4/13/91	1592AVKR	GaAs/InGaAs RTD with 18 ML GaAs barriers; 50 Å well	No 300K NDR
1593	4/13/91	1593AVKR	GaAs/InGaAs RTD with 14 ML GaAs barriers; 50 Å well	No 300K NDR
1594	4/13/91	1594AVKR	GaAs/InGaAs RTD with 10 ML GaAs barriers; 50 Å well	No 300K NDR
1595	4/13/91	1595AVKR	GaAs/InGaAs RTD with 6 ML GaAs barriers; 50 Å well	No 300K NDR

1609	4/19/91	1609AVKR	GaAs/InGaAs RTD with 10 ML GaAs barriers; 40 Å well	No 300K NDR
1610	4/19/91	1610AVKR	GaAs/InGaAs RTD with 10 ML GaAs barriers; 60 Å well	No 300K NDR
1611	4/19/91	1611AVKR	GaAs/InGaAs single barrier with 50Å GaAs barrier	
1674	8/15/91		InAs (~ 1 µm) on GaAs	Pyramidal growth, severe mismatch.
1713			1.5 µm Si (23.5) InGaAs	E_p = 0.794 eV, ΔE =20meV
1718	8/30/91	1718AVKR	AlAs/InGaAs (6/18/6) 1000Å DR QWITT with Si(22.2); No GI	
1780	9/30/91	1780AVKR	AlAs/InGaAs (6/17/6) Baseline DBRTD; No GI	For.bias: V_p = 1.1 V, J_p=96.4 kA/cm^2, V=.55V PVCR=9.8 Rev.bias:V_p = 1.1 V, J_p=87.8 kA/cm^2, V=.54V PVCR=10.3
1781	9/30/91	1781AVKR	AlAs/InGaAs (6/17/6) 1000Å DR QWITT with Si(22.2); No GI	For.bias: V_p = 0.96 V, J_p=65.5 kA/cm^2, V=0.6V PVCR=7.8 Rev.bias:V_p = 1.7 V, J_p=80.6 kA/cm^2, V=0.99V PVCR=10.58
1782	9/30/91	1782AVKR	AlAs/InGaAs (6/17/6) 2000Å DR QWITT with Si(22.2); No GI	For.bias: V_p = 0.96 V, J_p=65.2 kA/cm^2, V=0.59V PVCR=7.3 Rev.bias:V_p = 2.45 V, J_p=81.8 kA/cm^2, V=0.74V PVCR=9.4 Think 2000Å DR is too long for this quantum well s
1784	10/4/91		2.1 µm of bulk Si(22.2) InGaAs	E_p = 0.782 eV, ΔE=25 meV
1785	10/4/91		2.1 µm of bulk undoped InGaAs	E_p = 0.794 eV, ΔE=6 meV
1865	11/13/91	1865AVKR	AlAs/InGaAs DIMQWITT with L=180Å Si(23.11) and 1 µm undoped drift region	
1866	11/13/91	1866AVKR	AlAs/InGaAs DIMQWITT with L=210Å Si(23.11) and 1 µm undoped drift region	
1867	11/13/91	1867AVKR	AlAs/InGaAs DIMQWITT with L=240Å Si(23.11) and 1 µm undoped drift region	
1884	11/16/91	1884AVKR	AlAs/InGaAs DIMQWITT with L=225Å Si(23.11) and 1 µm undoped drift region	
1885	11/16/91	1885AVKR	AlAs/InGaAs DIMQWITT with L=255Å Si(23.11) and 1 µm undoped drift region	
1886	11/16/91	1886AVKR	AlAs/InGaAs DIMQWITT with L=285Å Si(23.11) and 1 µm undoped drift region	
2020	1/17/92	2020AVKR	AlAs/InGaAs 2000Å DR QWITT with 9/22/9 ML quantum well	V_p=1.2V,J_p=2.4 kA/cm^2, PVCR=6.5 in QWITT mode;
2046	1/27/92	2046AVKR	AlAs/GaAs/InGaAs symmetric DBRTD with (5ML/4ML) barrier with 22 ML InGaAs quantum well	For.bias: V_p = 0.52 V, J_p=24.8 kA/cm^2, PVCR=4.25 Rev.bias:V_p = 0.61 V, J_p=30.2 kA/cm^2, PVCR=3.7
2047	1/27/92	2047AVKR	AlAs/GaAs/InGaAs symmetric DBRTD with (9 ML barrier with 22 ML InGaAs quantum well	For.bias: V_p = 0.49 V, J_p=6.4 kA/cm^2, PVCR=8 Rev.bias:V_p = 0.52 V, J_p=8 kA/cm^2, PVCR=7.3
2156	5/15/92	2156AVKR	AlAs/InGaAs (6/17/6) DBRTD	
2157	5/15/92	2157AVKR	AlAs/InGaAs ((5/17/5) 1000 Å DR QWITT	
2160	5/16/92	2160AVKR	AlAs/GaAs (6/18/6) 1000 Å DR QWITT	
2161	5/16/92	2161AVKR	AlAs/GaAs 1000 Å InAs DR QWITT	

2187	5/23/92	2187AVKR	n+/0.64um/n+ InGaAs Cox-Strack structure	
2188	5/23/92	2188AVKR	ALAs/InGaAs (5/17/5) DBRTD	
2189	5/23/92	2189AVKR	AlAs/InGaAs (6/17/6) DBRTD	
2190	5/23/92	2190AVKR	AlAs/InGaAs (7/17/7) DBRTD	
2191	5/23/92	2191BVKR	AlAs/InGaAs SBV with 18ML AlAs Barrier	
2197	5/24/92	2197AVKR	AlAs/AlGaAs chair barrier heterojunction barrier varactor	
2279	6/8/92	2279BVKR	AlAs/InGaAs (5/19/5) QWITT with 750Å InGaAs drift region	
2280	6/8/92	2280BVKR	AlAs/InGaAs (5/19/5) QWITT with 750Å InAs drift region	
2281	6/8/92	2281BVKR	AlAs/InAs (5/21/5) QWITT with 750Å InAs drift region	
2313	6/15/92	2313AAJT	ELO (5/19/5) AlAs/InGaAs QWITT with 750Å InGaAs drift region	Gave to Alwin
2358	6/25/92	2358AVKR	AlAs/InGaAs (35 ML) barrier SBV	
2359	6/25/92	2359AVKR	AlAs/InGaAs (18 ML) barrier SBV	
2360	6/25/92	2360AAJT	AlAs/InGaAs (18 ML) barrier on ELO layer	Gave to Alwin
2367	6/27/92	2367AVKR	AlAs/InAs (9/22/9) DBRTD	
2368	6/27/92	2368AKKG	AlAs/InGaAs switching 10 ML single barrier diode	Gave to Kiran, saw no switching behaviour
2369	6/27/92	2369AVKR	AlAs/InGaAs (4/22/5) QWITT with 850Å InGaAs drift region	
2374	6/28/92	2374AVKR	AlAs/InAlAs/InGaAs (50Å/50Å/50Å) SBV	
2397	7/4/92	2397AVKR	1.2 µm undoped InGaAs	Nd-Na@ 300k = 1.3 x 10^{16}cm^{-3}, µ(300K)=3800 n(@77K) = 3.75 x 10^{15} cm^{-3}, µ=17500
2398	7/4/92	NRL2398	InAlAs/InGaAs HBT with 5ML AlAs etch stop layer	Gave wafer to Carl on 7/10/92 f_t=22 GHz, f_{max}=5 GHz
2443	8/22/92		~ 1 µm undoped InGaAs	Started growth on a rough substrate and RHEED was very spotty, so couldn't get a growth rate. Think it should be a 1 ML/sec but not sure.
2444	8/22/92		~ 1 µm undoped InGaAs	Repeat of #2443
2445	8/22/92		~ 1 µm undoped InGaAs	Repeat of #2443
2470	8/29/92		Nominally undoped InGaAs grown at 0.59 ML/sec. 1.04 µm thick.	No depletion correction At 300K: n=8.6x10^{15} cm^{-3} µ= 3400cm^2/Vs At 77K: n=3.6x10^{15} cm^{-3} µ=8860cm^2/Vs
2471	8/29/92		Si (21.35) InGaAs epi grown at 0.59 ML/sec. 0.62 µm thick.	
2472	8/29/92		Si (18.5) InGaAs epi grown at 0.59 ML/sec. 0.62 µm thick.	
2507	9/4/92		Si (17.5) InGaAs epi grown at 0.59 ML/sec. 0.85 µm thick.	
2511	9/4/92		Si (19.5) InGaAs epi grown at 0.59 ML/sec. 0.64 µm thick.	
2541	9/11/92	2541AVKR	AlAs/InGaAs SBV with 100Å barrier and 3000Å Si(18.20) depletion region	
2542	9/11/92	2542AVKR	AlAs/InGaAs SBV with 200Å barrier and 3000Å Si(18.20) depletion region	
2543	9/11/92	2543AVKR	AlAs/InGaAs SBV with 300Å barrier and 3000Å Si(18.20) depletion region	

2563	9/19/92		pnp InAlAs/InGaAs HBT with 5 ML AlAs etch stop	Gave to Carl. EMITS visible red light around emitter periphery. Very strange characteristics compared to npn (MBE#2398) grown earlier for him.
2564	9/19/92	2564AVKR	AlAs/InGaAs SBV with 400Å barrier and 3000Å Si(18.20) depletion region; grown on SI/n+ substrates	
2594	9/30/92		Cox-Strack structure: 1 µm Si(17.04) InGaAs on n+ 1000 Å Si(21.35)	
2595	9/30/92		InGaAs p-n diode	
2596	9/30/92		1.5 µm Si(16.72) n-type GaAs (5 x 10^{15} cm^{-3})	Gave to Saiful
2597	9/30/92		1.5 µm Be(12.56) p-type GaAs (5 x 10^{15} cm^{-3})	Gave to Saiful
2640	10/27/92		LT (T_{sub}=250 C) 250Å $Al_{0.52}Ga_{0.48}As$ SBV with Si(18.55) 3000Å depletion region	
2641	10/27/92		LT (T_{sub}=250 C) 500Å $Al_{0.52}Ga_{0.48}As$ SBV with Si(18.55) 3000Å depletion region	
2642	10/27/92		LT (T_{sub}=250 C) 750Å $Al_{0.52}Ga_{0.48}As$ SBV with Si(18.55) 3000Å depletion region	
2645	10/29/92		InAlAs/AlAs/InAlAs (50Å/50Å/50Å) composite SBV with 3000Å Si(18.10) depletion region	Grown at 1 ML/sec
2646	10/29/92		InAlAs/AlAs/InAlAs (50Å/100Å/50Å) composite SBV with 3000Å Si(18.10) depletion region	Grown at 1 ML/sec
2656	11/01/92		InAlAs/InGaAs npn HBT with 0 ML AlAs etch stop layer	Grown at 1 ML/sec Sent to Carl Kyono(NRL)
2657	11/01/92		InAlAs/InGaAs npn HBT with 5 ML AlAs etch stop layer	Grown at 1 ML/sec Sent to Carl Kyono(NRL)
2658	11/01/92		InAlAs/InGaAs npn HBT with 10 ML AlAs etch stop layer	Grown at 1 ML/sec Sent to Carl Kyono(NRL)