Table 1.1.1

The highest field effect mobility values measured from OTFTs as reported in the literature annually from 1986 through 2000.**[1.1]**

Year	*Mobility* ($cm^2 V^{-1} s^{-1}$)	*Material (deposition method)* (v) = vacuum deposition (s) = from solution	I_{on}/I_{off}*	*W/L*
1983	Minimal, not reported (NR)	Polyacetylene (s) (demonstration of field effect in an OTFT)	NR	200
1986	10^{-5}	Polythiophene (s)	10^{3}	NR
1988	10^{-4}	Polyacetylene (s)	10^{5}	750
	10^{-5}	Phthalocyanine (v)	NR	3
	10^{-4}	Poly(3-hexylthiophene) (s)	NR	NR
1989	10^{-3}	Poly(3-alkylthiophene) (s)	NR	NR
	10^{-3}	α–ω-hexathiophene (v)	NR	NR
1992	0.027	α–ω-hexathiophene (v)	NR	100
	2×10^{-3}	Pentacene (v)	NR	NR
1993	0.05	α–ω-di-hexyl-hexathiophene (v)	NR	100–200
	0.22†	Polythienylenevinylene (s)	NR	1000
1994	0.06	α–ω-dihexyl-hexathiophene (v)	NR	50
1995	0.03	α–ω-hexathiophene (v)	$>10^{6}$	21
	0.038	Pentacene (v)	140	1000
	0.3	C_{60} (v)	NR	25
1996	0.02	Phthalocyanine (v)	2×10^{5}	NR
	0.045	Poly(3-hexylthiophene) (s)	340	20.8
	0.13	α–ω-dihexyl-hexathiophene (v)	$>10^{4}$	7.3
	0.62	Pentacene (v)	10^{9}	11
1997	1.5	Pentacene (v)	10^{8}	2.5
	0.05	Bis(dithienothiophene) (v)	10^{8}	500
1998	0.1	Poly(3-hexylthiophene) (s)	$>10^{6}$	20
	0.23	α–ω-dihexyl-quaterthiophene (v)	NR	1.5
	0.15	Dihexyl-anthradithiophene	NR	1.5
2000	0.1	n-decapentafluoroheptyl-methyl-naphthalene-1,4,5,8-tetracarboxylic diimide (v)	10^{2}	1.5
	0.1	α–ω-dihexyl-quinquethiophene (s)	NR	NR

Table 1.1.4

The chemical and comparison of mobility of classes of organic and inorganic semiconductors.

[1.22]

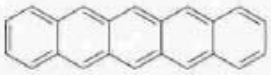
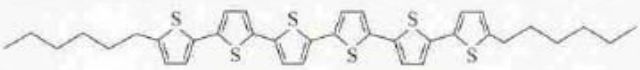
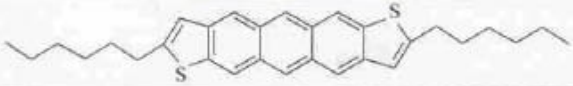
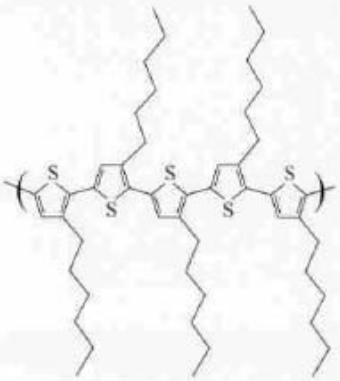
Semiconductor	*Representative chemical structure*	*Mobility* ($cm^2V^{-1}s^{-1}$)
Silicon	Silicon crystal	300–900
	Polysilicon	50–100
	Amorphous silicon	~1
Pentacene		~1
α,ω-dihexyl-sexithiophene		10^{-1}
α,ω-dihexylanthra-dithiophene		10^{-1}
Regioregular poly(3-hexylthiophene)		10^{-1}
Organic–inorganic hybrid	Phenethylamine–tin iodide	~1

Table 1.2.2

The values of ON current of different channel length and width in this thesis for constant current method.

Channel width/length [μm/μm]	ON current [A]
26600/50	8.86×10^{-8}
3700/50	1.23×10^{-8}
1200/50	4×10^{-9}
600/100	10^{-9}
600/50	2×10^{-9}
600/25	4×10^{-9}
600/10	10^{-8}