

Summer school on

Coding theory

Nordfjordeid 18.–22.June 2006

Schedule

Arrival: Sunday and Monday

Sunday

1900–2000 Dinner

Monday

0800–0900 Breakfast

1200 Lunch

1300–1345 Amin Shokrollahi: Introduction to modern coding theory. (Shannon's theorem, the capacity of a channel and examples of channel models.)

1400–1445 Judy Walker: Introduction to algebraic coding theory. (Code parameters like length, dimension, minimum distance, standard examples of linear codes, concatenation.)

1445–1515 Coffee

1515–1600 Iwan Duursma: Cyclic codes and exponential sums.

1615–1700 Amin Shokrollahi: Graphs and expansion/expander codes

1715–1800 Problem session

1830 Dinner

Tuesday

0800–0900	Breakfast
0900–0945	Walker: Basic bounds (definitions, Singleton, GV, Plotkin)
1000–1045	Duursma: Part 1 of: linear programming/Delsarte method, self–dual codes/invariant theory, association schemes/coset weight distributions
1045–1115	Coffee
1115–1200	Duursma: Part 2 of: linear programming/Delsarte method, self–dual codes/invariant theory, association schemes/coset weight distributions
1215–1300	Shokrollahi: Message passing algorithms
1300	Lunch
1400–1445	Shokrollahi: Expectation analysis
1445–1515	Coffee
1515–1730	Problem session
1830	Dinner

Wednesday

0800–0900	Breakfast
0900–0945 1000–1045	Walker: Curves, nonsingularity, genus Duursma: Codes over rings/Gray map Combinatorial designs/Assmus–Mattson Theorem
1045–1115	Coffee
1115–1200	Shokrollahi: Discrete time random processes
1200	Lunch
1300–1900	Excursion to Briksdal
1900	Dinner

Thursday

0800–0900	Breakfast
0900–0945 1000–1045	Shokrollahi: Density evolution Shokrollahi: Fountain Codes
1045–1115	Coffee
1115–1200 1215–1300	Walker: Points, functions, divisors Walker: AG codes
1300	Lunch
1400–1445	Duursma: matroid theory/secret sharing
1445–1515	Coffee
1515–1730	Problem session
1830	Dinner

Friday

0800–0900	Breakfast
0900–0945	Walker: Pseudocodewords I
1000–1045	Walker: Pseudocodewords II
1045–1115	Coffee
1115–1200	Duursma: algebraic decoding/grobner bases hermitian codes I
1215–1300	Duursma: algebraic decoding/grobner bases hermitian codes II
1300	Lunch
1400–1530	Open problem session
1900	Dinner
Departure	