Prof. Hung-Lin Fu / Department of Applied Mathematics

Combinatorial Design, Graph Theory and their Applications

My recent research includes the following topics:

1. Study *Group Testing with various models* which are applicable in computational molecular biology.

2. Construct *conflict-avoiding codes* by way of special sequences which we constructed and weighted matchings with suitable models.

3. Use the new idea we developed called *core cluster* to find the *optimal average information ratio* of perfect secret-sharing schemes for the access structures based on graphs.

4. Obtain good adaptive algorithms in *finding hidden graphs and hypergraphs*, this result is important in DNA sequencing.

5. Construct *codes with the identifiable parent property* for multimedia fingerprinting.

6. Find *the global packing number* of special networks which are useful in communication design.

7. Find the *vertex feedback number* of graphs which are of good application in preventing network deadlocks.