Areas of Excellence Scheme – Institute of Network Coding
(AoE/E-02/08)

Layman's Summary
Widely regarded as a major breakthrough in Information Science, Network Coding was co-founded by the Principal Investigators of this Areas of Excellence project in the late 1990s. Network Coding refutes the folklore that data transmission in a communication network is analogous to commodity flow, where the data packets are routed through the network from the sender to the receiver. Rather, recoding of data packets must be performed inside the network in order to achieve the maximum throughput.

To maintain Hong Kong's leadership in this field of research, the Institute of Network Coding (INC) is established at The Chinese University of Hong Kong, with members from other universities in Hong Kong and abroad.   We conduct forefront research in the field and develop Network Coding technologies in different application areas, including cloud storage, wireless communication, and data networks.   Our goal is to help raise the level of research and contribute to industrial innovation in the region and beyond.

During the funding period, we pioneered the prototyping of a few Network Coding technologies for proof of concept.   These efforts had resulted in three startup companies, with a storage technology developed already applied in data centers serving millions of customers in real time.   We filed a number of patents for our inventions, and made proposals to standards organizations for the inclusion of our inventions in international standards. Last but not least, we helped train up young researchers and raise the level of research in communications and related areas in this geographic region.