

## ***Cyber-Physical Internet for Synchronizing Cross-Border Logistics (Code: 8x2k8)***

### **Goal:**

The vision of Physical Internet (PI) is to send and receive goods just like sending and receiving email messages. Europe has made great efforts in this field. If realized, the way that logistics services are provided and consumed will change dramatically, just as email changed the role of post offices and the way people use postal services. The Greater Bay Area (GBA) has an excellent transportation infrastructure. Hong Kong, Guangzhou and Shenzhen are three premier land, marine, aviation and rail hubs through which cities are well connected. This motivates us to explore and build PI in the GBA.

The special session aims to explore the Cyber-Physical Internet (CPI) through several aspects, including: (1) CPI digitization technologies for creating cyber-physical logistics systems; (2) CPI network services for setting, configuring and operating plug-and-play components; (3) CPI mechanisms to motivate and facilitate collaboration; and (4) CPI decision supports for synchronized logistics planning, scheduling and execution. The vision of CPI is to send and receive goods just like sending and receiving messages within chat groups using instant messaging platforms. CPI is particularly significant for the GBA economy, which has been dominated by export manufacturing activities. Import of raw materials and export of finished products both start and end in global markets, and both ends are well connected through cost-effective logistics hubs of multiple modes. However, global manufacturing has recently experienced substantial reconfiguration under reindustrialization strategies. The transformation has been unprecedentedly urged by the Covid-19 pandemic. Social distancing measures implemented at global and local levels have resulted in large-scale interruptions in logistics operations. People are forced to work from home and use online shopping. Demands for high-quality e-commerce logistics services have soared. But, interrupted port operations, cancelled passenger flights, and delayed shipment arrivals and departures have substantially constrained capacities and created serious operational jams and deadlocks at terminals and ports. The world container index has increased over five times and the airfreight index more than doubled in two years. CPI provides smart solutions to establish post-pandemic “new norms”, where logistics resilience and CO2 emission targets are of paramount importance. We have gathered a multidisciplinary international team of world-leading researchers with complementary expertise to find answers to the fundamental research questions and technological challenges required to innovate CPI solutions.

### **Topics:**

- Advanced Technologies for Logistics
- Automation for Logistics
- Cyber-physical Internet
- Logistics and Supply Chain Management
- Manufacturing and Logistics Synchronization
- New Business Modes for Logistics
- Physical Internet
- Resilience for Logistics

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