ビジネスエンジニアリング研究室
Business Engineering Laboratory

SDM System Design and Management

What is Business Engineering?

Business engineering is a scientific field develops methodologies for visualizing business systems from multiple viewpoints, and that evaluates decisions in various activities in business.

- Flextime system
- Joint Research with government and enterprises
- Quantitative Approach
- International Lab. (Foreign student:43%)

BE LAB. MEMBERS

Faculty

Professor **Nakano**

Professor **Greene**

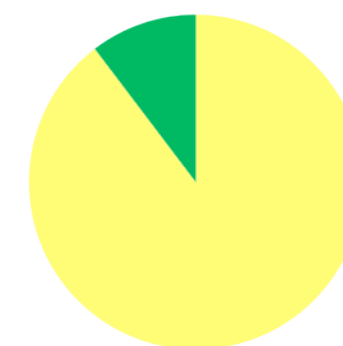Associate Professor **Minato**

Number of Student

All：15
Master:11
Doctor :4
Male：11
(International student 7名)
Female：4

Seminar

◆ Japanese
Every Thursday
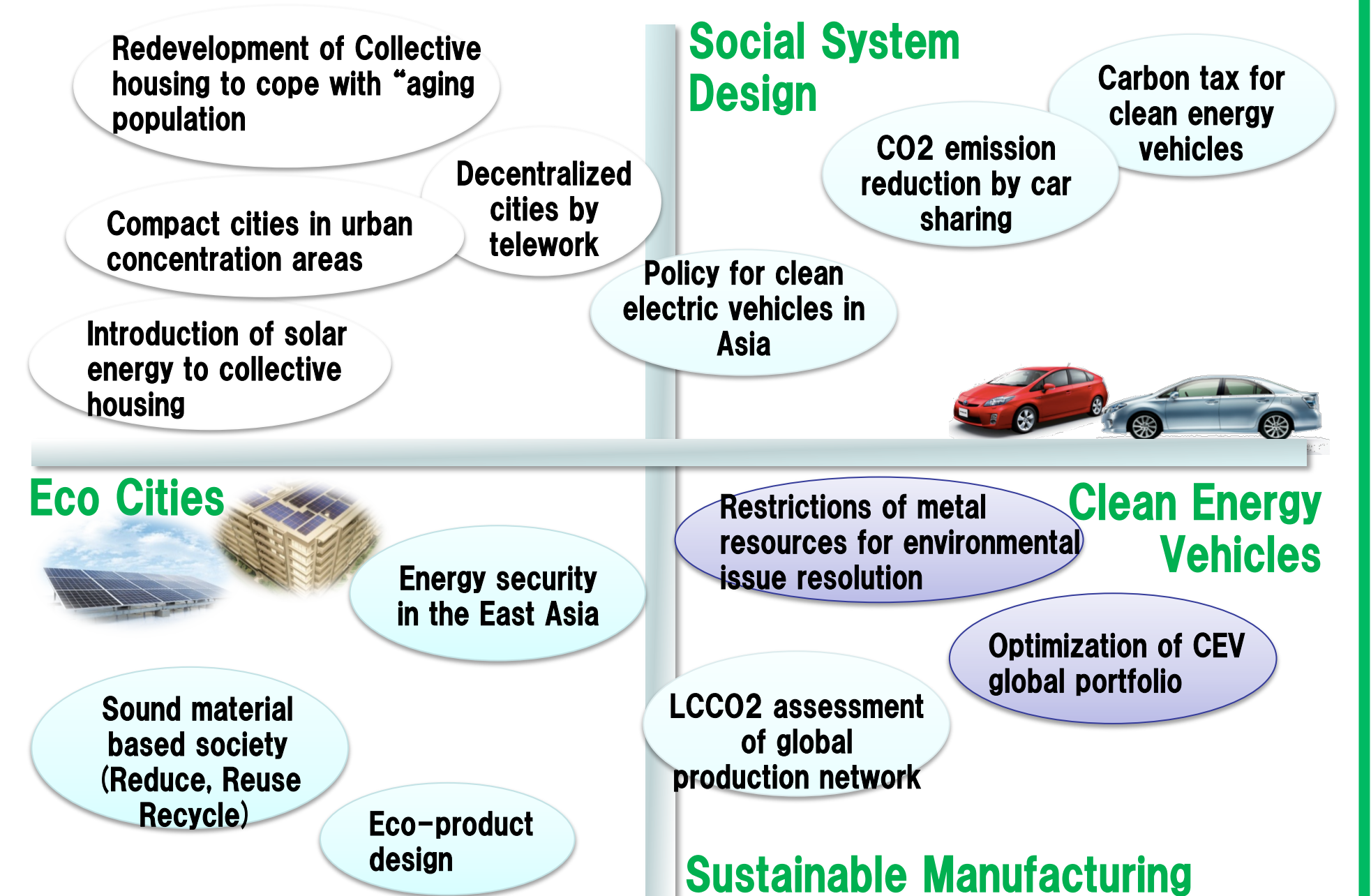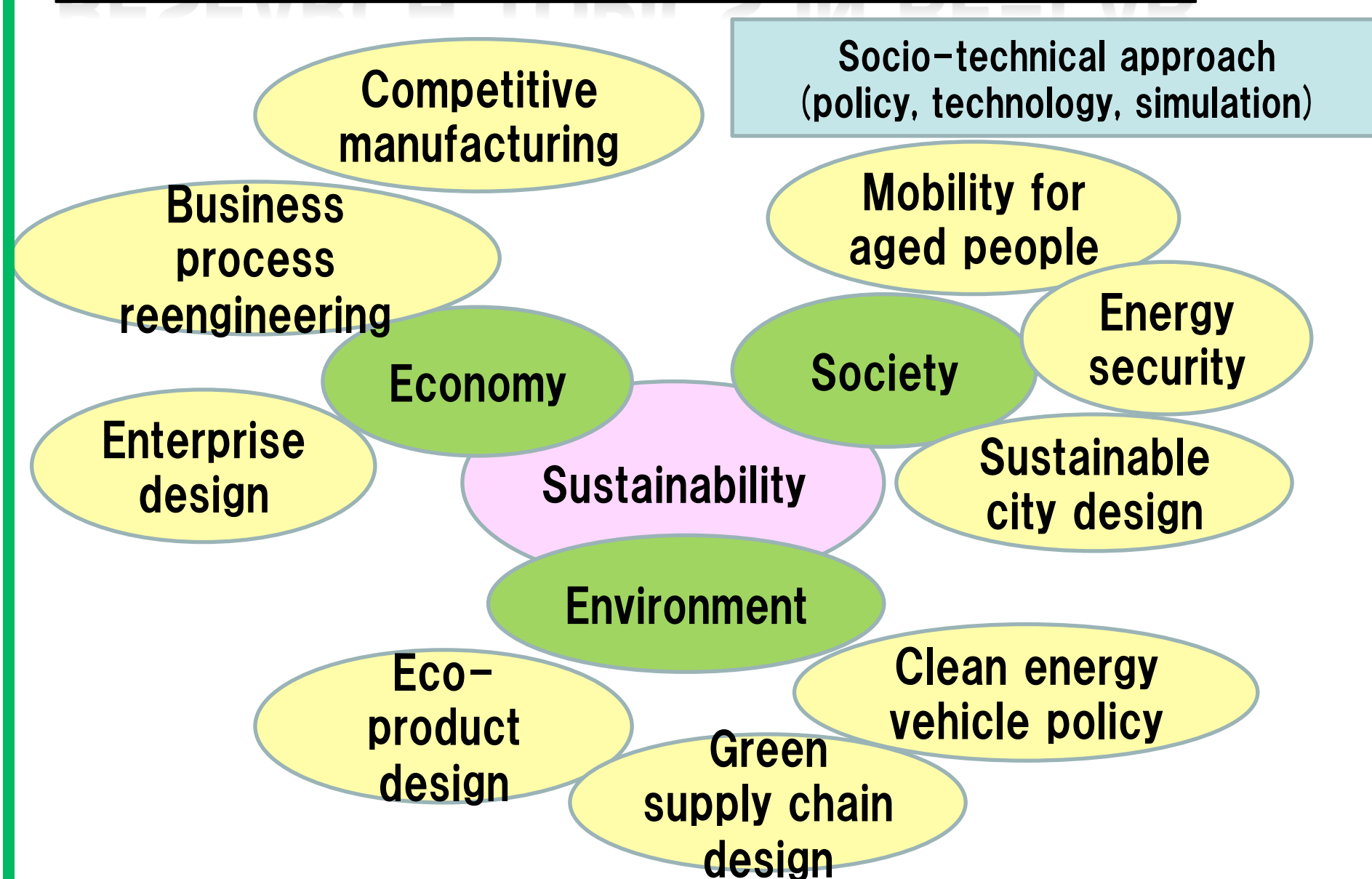19:00〜@C3N09
◆ English
Every Thursday
16:30〜@C3N09

BElab
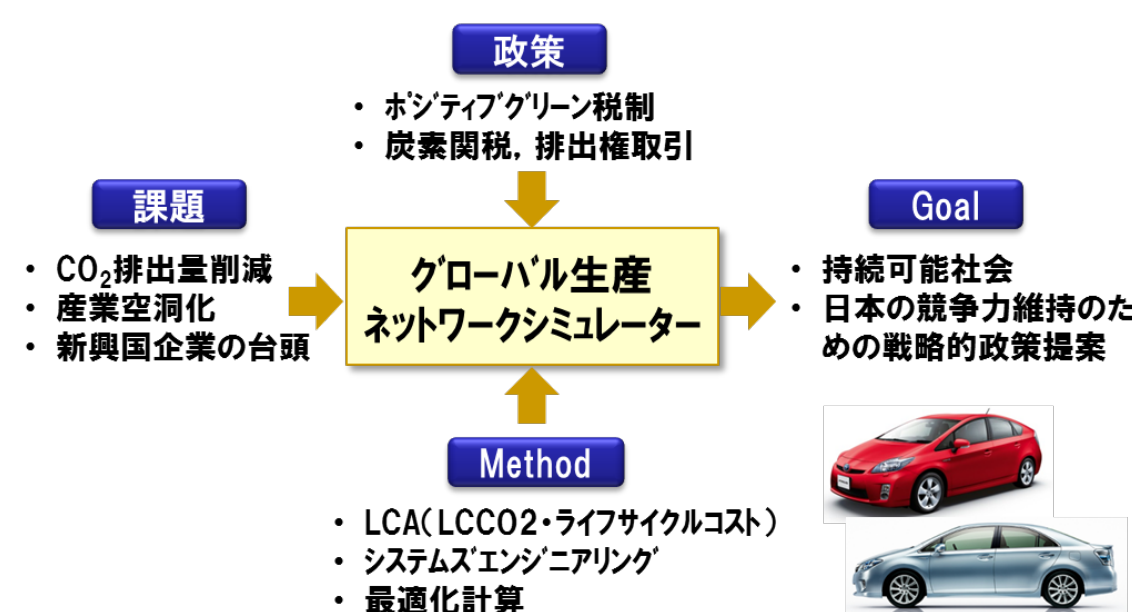
SDM

Japanese

International student

RESEARCH TOPICS IN BE-LAB

Competitive manufacturing

Socio-technical approach (policy, technology, simulation)

Business process reengineering

Mobility for aged people

Economy

Society

Energy security

Enterprise design

Sustainability

Sustainable city design

Environment

Eco-product design

Green supply chain design

Clean energy vehicle policy

Social System Design

Redevelopment of Collective housing to cope with "aging population

Decentralized cities by telework

CO2 emission reduction by car sharing

Carbon tax for clean energy vehicles

Compact cities in urban concentration areas

Policy for clean electric vehicles in Asia

Introduction of solar energy to collective housing

Eco Cities

Energy security in the East Asia

Restrictions of metal resources for environmental issue resolution

Clean Energy Vehicles

Optimization of CEV global portfolio

Sound material based society (Reduce, Reuse Recycle)

LCCO2 assessment of global production network

Eco-product design

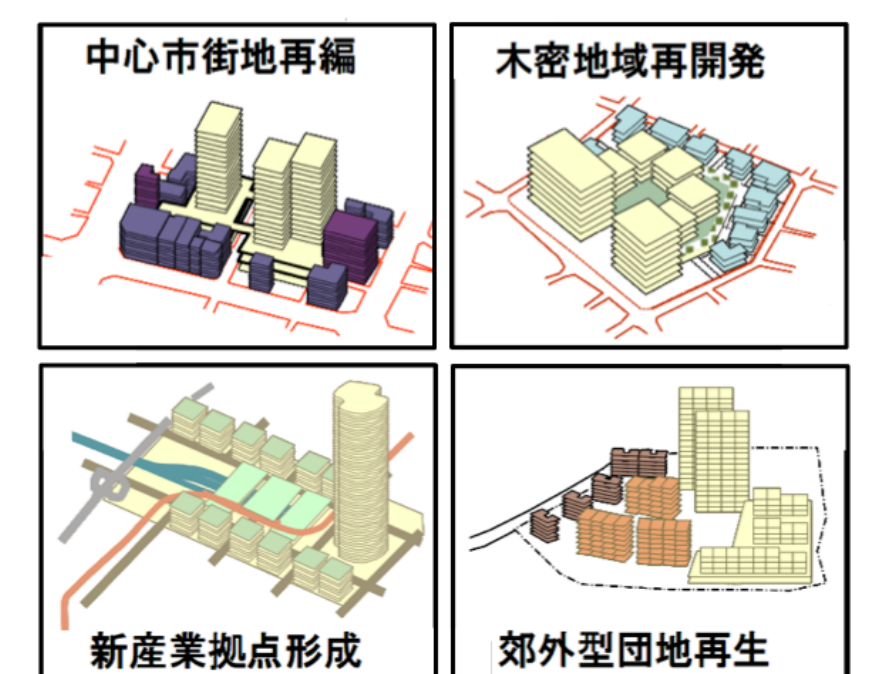**Sustainable Manufacturing**

RESEARCH PROJECT

Global Supply Chain

Building a complex system of global production and supply In the manufacturing industry as robust one, considering the risk of energy, natural resources, such as disaster.

政策
・ポジティブグリーン税制
・炭素関税, 排出権取引

課題
・CO₂排出量削減
・産業空洞化
・新興国企業の台頭

グローバル生産ネットワークシミュレーター

Goal
・持続可能社会
・日本の競争力維持のための戦略的政策提案

Method
・LCA(LCCO2・ライフサイクルコスト)
・システムズエンジニアリング
・最適化計算

Advanced City Design

Seeking the way of a sustainable advanced city, and verifying environmental, economy and sociality by quantitative approach.

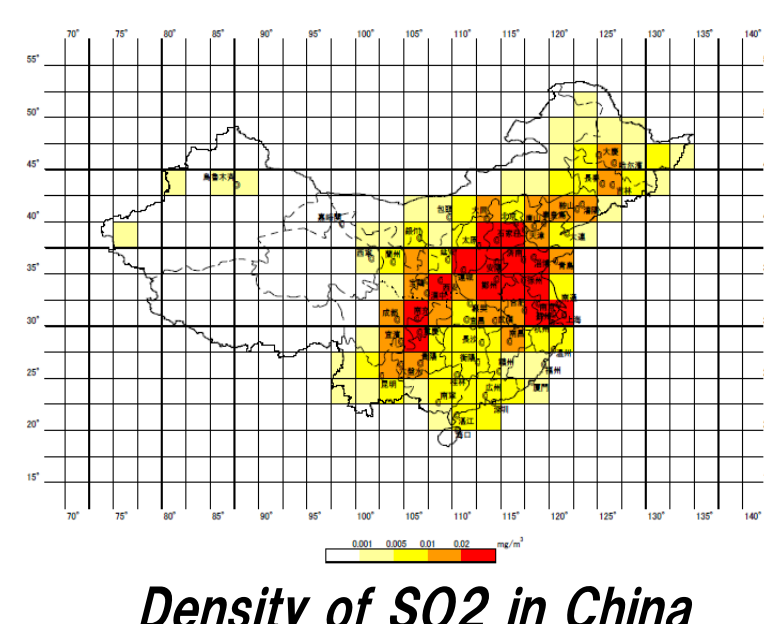中心市街地再編　木密地域再開発
新産業拠点形成　郊外型団地再生

Problem of urban model in development

[Theme of Research]
Multi-Agent Modeling of Residential Redevelopment for a Crowded Region of Wooden Dwellings
(Atsushi Yoshinaga)

Environmental Policy Design

Capturing the environmental issued related to human life with a focus on CO2 emissions by the multifaceted and comprehensive, visualizing and designing by various schemes

Density of SO2 in China

[Theme of Research]
The issue of Effect Evaluation on Chinese Air Pollution Problem and Technology Transfer from Japan to China
(Huang Xinru)

Marketing Model Design

We have a research network with national and international companies and universities. Based on the analysis of consumer behavior, we propose an optimal business model and social systems.

新車販売台数 x_{jk} を設計変数とし、k年のCEVシステムコスト f_k を設定.

$$min \ f_k(x_{jk})$$

$$f_k(x_{jk}) = \sum_i \sum_j S_{jk}(x_{jk}) A_i F_{jk} E_{ik} + \sum_j x_{jk} V_{jk} + \sum_j \frac{x_{jk} T_j}{I}$$

燃料コスト　　　　　車両コスト　　インフラコスト

平均走行距離　エネルギー価格
保有台数　燃費
新車販売台数
車両価格
CEV台数とインフラの比
インフラ価格

Portfolio Optimization Model

[Theme of Research]
Portfolio Optimization for Clean Energy Vehicles in Japan
(Yosuke Arimori)

Lab HP