

ICUS

NAGAI LAB.

[Infrastructure Technology and Management]

International Center for Urban Safety Engineering

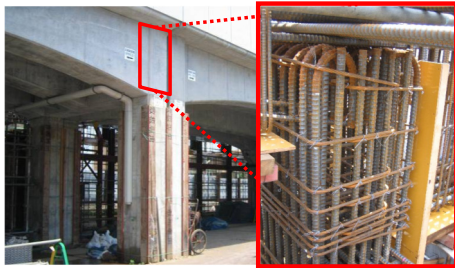
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Civil Engineering Department

Infrastructure Management for Developed Society

Anchorage Performance of RC

As Japanese seismic design code is becoming more strict, larger amount of reinforcement must be placed in Reinforced Concrete (RC) structures at the joint part.



Problems

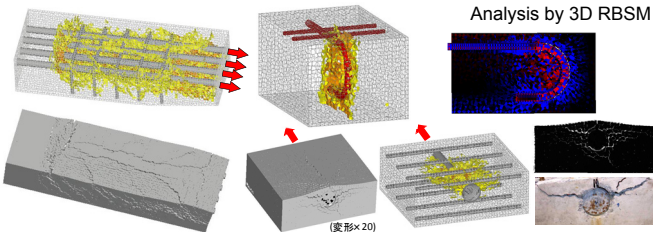
Increase the fabrication time

Poor concrete compaction may occur.

Stress condition in complex reinforcement arrangement

➔ Numerical simulation can clarify

We aim to propose the rational design code

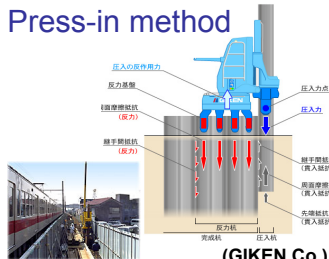


Analysis by 3D RBSM

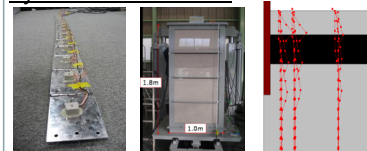
Effective Press-in Driving Method

Press-in method is a revolutionary technique in pile installation technology developed by GIKEN Co. This research is a collaborative work with GIKEN to develop the effective driving method through the experiment and numerical simulation.

Press-in method

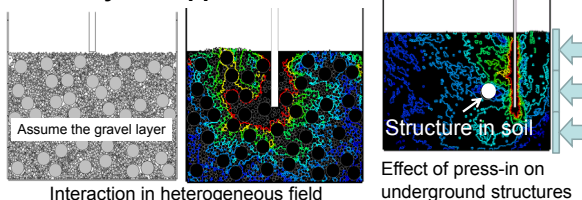


Measurement of soil deformation by inclination sensor



Measure the soil deformation during the press-in excution.

Analytical approach

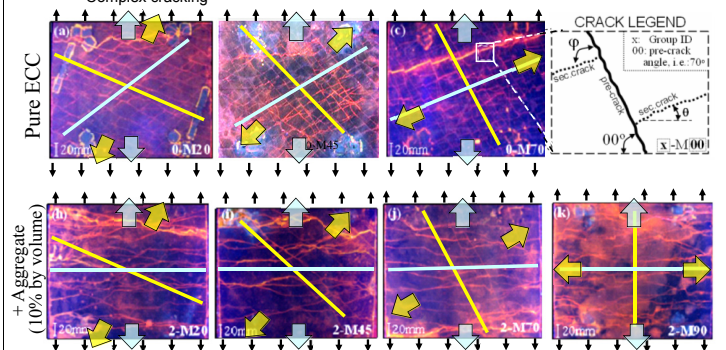
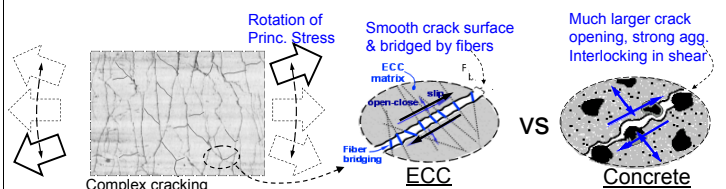


Interaction in heterogeneous field

Effect of press-in on underground structures

Mechanics of Fiber Reinforced Concrete under Principal Stress Rotation

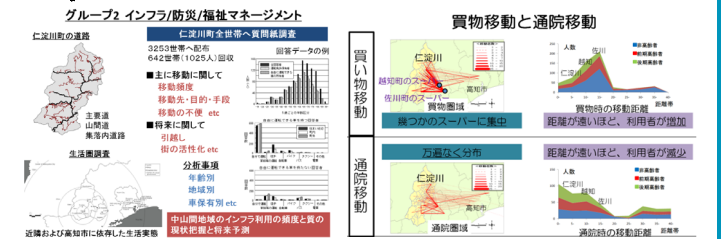
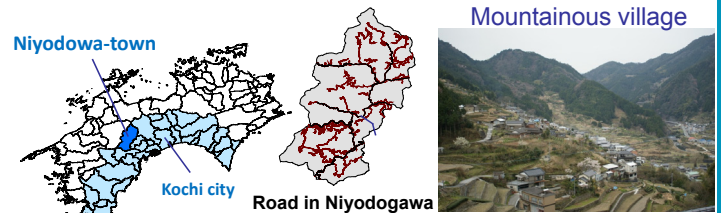
Robust material against the principal stress rotation is developed by focusing the shear performance.



Control of cracking direction of HPFRCC

Infrastructure Management for Aging Society

Japan is now facing a rapid aging problems. To maintain the society and infrastructure in the rural area, this study investigates the maintenance system of infrastructure, transportation system, social network etc. in Kochi Prefecture, Japan.



Movement of residents in daily life