KOSEN
Institute of National Colleges of Technology, Japan

Department of Civil Engineering
National Institute of Technology (KOSEN), Akashi College

Strength evaluation of structures and its peripheral simulation method

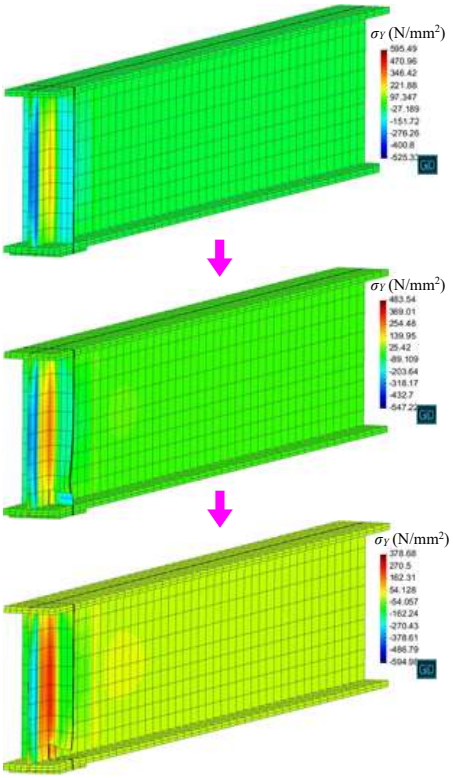
Name	MIYOSHI Takao	E-mail	miyoshi@akashi.ac.jp
Status	Associate Professor		
Affiliations	JSCE (Japan Society of Civil Engineers), JSSC (Japanese Society of Steel Construction), JSME (The Japan Society of Mechanical Engineers)		

Keywords	structures, ultimate strength, finite element method, aging degradation, artificial intelligence

Technical Support Skills	Ultimate strength evaluation of steel structures based on non-linear finite element analysis Several structural analyses using finite element method Ultimate strength evaluation of steel structures based on model testing

Research Contents

(1) Investigation on residual stress distribution and deformation behavior of steel structures under partial volume loss process due to corrosion
(2) Proposal for ultimate strength evaluation method of corroded steel structures
(3) Investigation on damaged condition and mechanical properties of aged structures
(4) Exploitation of numerical simulation method for ultimate behavior of structures caused by aging degradation



Numerical results on deformation and residual stress re-distribution behavior at main girder end of the plate girder bridge under partial volume loss process of end stiffener

Compression test on main girder end specimen with partial volume loss

Field investigation of an aging bridge

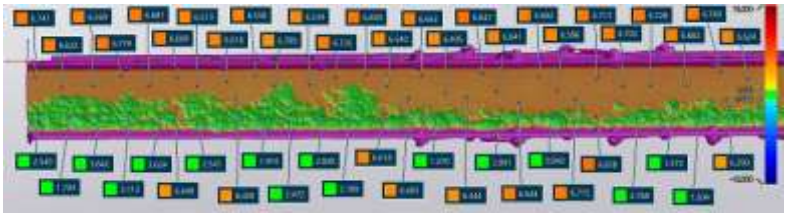


Plate thickness measurement result of corroded steel member using 3D laser scanner

Numerical verification of redundancy against collapse of the steel truss bridge caused by fracture of a member

Available Facilities and Equipment

Universal hydraulic testing machine (2000kN capacity)	General purpose finite element analysis program MSC Marc/Mentat
Personal computer (HP Pavilion 500-040jp)	Self-made non-linear finite element analysis program
Personal computer (HP ENVY 700-260jp)	Exterior digital caliper gauge (TECLOCK GMD-1J)
Fortran compiler (PGI)	Digital point micrometer (Niigata Seiki MCD232-25P)
General purpose pre and post processor GiD	Portable Data Logger (TML TDS-150)