

## Representative Publications [1]

1. Yoo S and Toi Y, Numerical simulation of mechanical sensors using hydrated IPMCs, MECHANICAL ENGINEERING JOURNAL 2(1): 14-00326 FEB 2015
2. Toi Y, Soft Actuators: Materials, Modeling, Applications, and Future Perspective, (Part vi Modeling, 22Material Modeling) Springer 299~312 NOV 2014
3. Yoo S and Toi Y, Numerical simulation of mechanical sensors using conducting polymers, JOURNAL OF SOLID MECHANICS AND MATERIAL ENGINEERING 7(6): 586~600 NOV 2013
4. He J and Toi Y, Enhanced computational modeling of shape memory alloys and its applications to honeycomb analysis, JOURNAL OF SOLID MECHANICS AND MATERIAL ENGINEERING 7(1): 27~42 JAN 2013
5. He J and Toi Y, Improved constitutive modeling for phase transformation of shape memory alloys, JOURNAL OF SOLID MECHANICS AND MATERIAL ENGINEERING 7(1): 11~26 JAN 2013
6. Toi Y and Hasegawa K, Element-size independent, elasto-plastic damage analysis of framed structures using the adaptively shifted integration technique, COMPUTERS AND STRUCTURES 89(23-24) 2162~2168 DEC 2011
7. Toi Y and Tsukamoto K, Computational modeling of adaptive trusses with shape memory alloy members, ENGINEERING LETTERS 19(1): 31~37 MAR 2011
8. Jung WS, Kang SS and Toi Y, Computational modeling of electrochemical-mechanical behaviors of Flenion-based actuators considering the effects of electro-osmosis and electrolysis, COMPUTERS & STRUCTURES .88 : 938~948 AUG 2010

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9. Takagaki M and Toi Y, Coupled Analysis of Induction Hardening Considering Induction heating, Thermal Elaso-viscoplastic Damage, and Phase Transformation, INTERNATIONAL JOURNAL OF DAMAGE MECHANICS 19: 321-338 APR 2010
10. Toi Y and Choi DG, Computational modeling of superelastic behaviors of shape memory alloy devices under combined stresses, JOURNAL OF COMPUTATIONAL SCIENCE AND TECHNOLOGY 2(4): 535~546 NOV 2008
11. Toi Y and Jung WS, Computational modeling of electrochemical-poroelastic bending behaviors of conducting polymer (PPy) membranes, JOURNAL OF COMPUTATIONAL SCIENCE AND TECHNOLOGY 2(4): 523~534 NOV 2008
12. Toi Y and Choi DG, Constitutive modeling of porous shape memory alloys considering strain rate effect, JOURNAL OF COMPUTATIONAL SCIENCE AND TECHNOLOGY 2(4): 511~522 NOV 2008
13. Toi Y and Jung WS, Finite element modeling of electrochemical-poroelastic behaviors of conducting polymer films, JOURNAL OF SOLID MECHANICS AND MATERIALS ENGINEERING 2(7): 865~876 JUL 2008
14. Takagaki M, Toi Y and Asayama T, Analysis of thermal fatigue crack propagation based on local approach to fracture, JOURNAL OF SOLID MECHANICS AND MATERIALS ENGINEERING 2(5): 675~684 MAY 2008
15. Tanaka H, Toi Y, Maeda K and Sakai T, Damage and fracture analysis of brittle structural elements reinforced with carbon fiber sheets, JOURNAL OF ENVIRONMENT AND ENGINEERING 3(1): 111~122 MAY 2008

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16. Toi Y, Lee JB, Taya M, Magneto-superelastic analysis of shape memory alloy helical spring actuators controlled by magnetic force, JOURNAL OF COMPUTATIONAL SCIENCE AND TECHNOLOGY 2(1): 11~22 FEB 2008
17. Toi Y, Hirose S, Simulation of self-repair process of steels damaged by creep -extension of continuum damage mechanics to self-repair process-, JOURNAL OF SOLID MECHANICS AND MATERIALS ENGINEERING 1(10): 1186~1196 OCT 2007
18. Toi Y, Jung WS, Finite element modeling of electrochemical-poroelastic behaviors of conducting polymers, COMPUTERS & STRUCTURES .85(19/20): 1453~1460 OCT 2007
19. Toi Y, Kang SS, Finite element analysis of two-dimensional electrochemical-mechanical response of ionic conducting polymer-metal composite beams, COMPUTERS & STRUCTURES 83 (31-32): 2573-2583 DEC 2005
20. Toi Y, Kang SS, Mesoscopic natural element analysis of elastic moduli, yield stress and fracture of solids containing a number of voids, INTERNATIONAL JOURNAL OF PLASTICITY 21 (12): 2277-2296 JUN 2005
21. Toi Y, Lee JG, Element-size independent analysis of elasto-plastic damage behaviors of framed structures, LECTURE NOTES IN COMPUTER SCIENCE 3483: 1055-1064 MAY 2005
22. Lee JB, Toi Y, Taya M, Finite element modeling of magneto-superelastic behavior of ferromagnetic shape memory alloy helical springs, LECTURE NOTES IN COMPUTER SCIENCE 3398: 694-703 FEB 2005
23. Toi Y, Lee JB, Taya M, Finite element analysis of superelastic, large deformation behavior of shape memory alloy helical springs, COMPUTERS & STRUCTURES 82 (20-21): 1685-1693 AUG 2004

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25. Lee JM, Toi Y, Elasto-plastic damage analysis of functionally graded materials subjected to thermal shock and thermal cycle, JSME INTERNATIONAL JOURNAL SERIES A-SOLID MECHANICS AND MATERIAL ENGINEERING 45 (3): 331-338 JUL 2002
26. Toi Y, Lee JM, Thermal elasto-viscoplastic damage behavior of structural members in hot-dip galvanization, INTERNATIONAL JOURNAL OF DAMAGE MECHANICS 11 (2): 171-185 APR 2002
27. Toi Y, Lee JG, Finite element crash analysis of framed structures by the adaptively shifted integration technique, JSME INTERNATIONAL JOURNAL SERIES A-SOLID MECHANICS AND MATERIAL ENGINEERING 43 (3): 242-251 JUL 2000
28. Isobe D, Toi Y, Analysis of structurally discontinuous reinforced concrete building frames using the ASI technique, COMPUTERS & STRUCTURES 76 (4): 471-481 JUL 2000
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31. Toi Y, Kiyosue T, Damage mechanics models for brittle microcracking solids based on 3-dimensional mesoscopic simulations, ENGINEERING FRACTURE MECHANICS 50 (1): 11-27 JAN 1995
32. Toi Y, Kobashi K, Iezawa T, Finite-element analysis of thermal elastoplastic behaviors of bridge girders in hot-dip galvanization, COMPUTERS & STRUCTURES 53 (6): 1307-1316 DEC 1994
33. Iezawa T, Yamashita T, Kanazawa S, Toi Y, Kobashi K, Thermal-elasto-plastic analysis on occurrence of liquid zinc-induced cracking in bridge girder under hot-dip galvanizing, TETSU TO HAGANE-JOURNAL OF THE IRON AND STEEL INSTITUTE OF JAPAN 80 (12): 950-955 DEC 1994
34. Toi Y, Che JS, Mesoscopic simulation of microcracking behaviors of brittle polycrystalline solids - (1st report, study of isotropic theory in continuum damage mechanics), JSME INTERNATIONAL JOURNAL SERIES A-MECHANICS AND MATERIAL ENGINEERING 37 (4): 434-441 OCT 1994
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36. Toi Y, Che JS, Computational damage mechanics models for brittle microcracking solids based on mesoscopic simulations, ENGINEERING FRACTURE MECHANICS 48 (4): 483-498 JUL 1994

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37. Toi Y, Isobe D, Adaptively shifted integration technique for finite-element collapse analysis of framed structures, INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING 36 (14): 2323-2339 JUL 30 1993
38. Toi Y, Isobe D, Static and dynamic finite-element analysis of transformation toughening in ceramic materials, ENGINEERING FRACTURE MECHANICS 42 (6): 911-924 AUG 1992
39. Toi Y, Yoshida S, Numerical-simulation of nonlinear behaviors of 2-dimensional block structures, COMPUTERS & STRUCTURES 41 (4): 593-603 1991
40. Toi Y, Yang HJ, Finite-element crush analysis of framed structures, COMPUTERS & STRUCTURES 41 (1): 137-149 1991
41. Toi Y,, Shifted integration technique in one-dimensional plastic collapse analysis using linear and cubic finite-elements, INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING 31 (8): 1537-1552 JUN 991
42. Toi Y, Atluri SN, Finite-element analysis of static and dynamic fracture of brittle microcracking solids .3. stationary and rapidly propagating cracks under dynamic loading, INTERNATIONAL JOURNAL OF PLASTICITY 6 (4): 389-414 JAN 1990
43. Toi Y, Atluri SN, Finite-element analysis of static and dynamic fracture of brittle microcracking solids .2. stationary and growing macrocracks under static loading, INTERNATIONAL JOURNAL OF PLASTICITY 6 (3): 263-280 JUL 1990
44. Toi Y, Atluri SN, Finite-element analysis of static and dynamic fracture of brittle microcracking solids .1. formulation and simple numerical examples, INTERNATIONAL JOURNAL OF PLASTICITY 6 (2): 169-188 APR 1990