

ADVANCED PARTICLE METHODS FOR CONTINUUM MECHANICS

SEIICHI KOSHIZUKA^{*}, SEIYA HAGIHARA[†]
AND MITSUTERU ASAI[‡]

^{*} The University of Tokyo
7-3-1, Hongo, Bunkyo-ku, Tokyo, 113-8656, JAPAN
koshizuka@sys.t.u-tokyo.ac.jp

[†] Saga University
1, Honjo-machi, Saga, 840-8502, JAPAN
hagihara@me.saga-u.ac.jp

[‡] Kyushu University
744, Motoooka, Nishi-ku, Fukuoka, 819-0395, JAPAN
asai@doc.kyushu-u.ac.jp

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ABSTRACT

Meshfree and particle methods have been developed for continuum mechanics, such as, fluid dynamics, solid mechanics, etc. The topics include theoretical studies of the methods, spatial and temporal discretization, higher-order schemes, algorithms, boundary conditions, numerical stability, multi-resolution techniques, high-speed solvers, particle shifting, parallel computing, etc. Physical modeling for free surfaces, fluid-solid interaction, permeation, plasticity, fracture, non-Newtonian, visco-elasticity, rigid bodies, multi-phase flows, phase change, heat transfer, chemical reaction, etc., is the subject of discussion. Application to benchmark problems, practical problems, large-scale problems, validation studies is equally important.