Tokyo University of Agriculture and Technology
Institute of Global Innovation Research

グローバルイノベーション研究院　公開セミナー
Institute of Global Innovation Research Open Seminar

Advanced validation of metal forming simulation using digital image correlation

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言語 / 英語　Language / English

東京農工大学 小金井キャンパス 6号館 501教室
Room 501, Building #6, Koganei Campus, TUAT

Abstract

Today, Digital Image Correlation (DIC) is widely used to pursue local model validation. In this seminar, a series of model validations are discussed that rely on the local material response during or after a metal forming process. Although DIC conveniently enables to capture the strain field at the surface of the plastically deforming material, a correct and honest comparison between the experimentally acquired and numerically computed strain fields is not straightforward. The crux of the problem is that strain calculation methods used in DIC and FEA are fundamentally different. A method enabling a consistent point-to-point comparison will be presented. Moreover, it will be shown that the method mitigates uncertainties related to the calibration, frame misalignment, lens distortion and speckle pattern quality. The methodology will applied in the seminar to validate a numerical simulation of a cold bending process on thick HSS.

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