Youngung **Jeong**

Assistant professor

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Education

POSTECH, Graduate Institute of Ferrous Technology — *Pohang, Republic of Korea*
PhD — *Mar. 2010 - Feb. 2014*

POSTECH, Graduate Institute of Ferrous Technology — *Pohang, Republic of Korea*
MS — *Mar. 2008 - Feb. 2010*

Hanyang University, Materials Science and Engineering — *Seoul, Republic of Korea*
BS — *Mar. 2001 - Feb. 2008*

Experience

Changwon National University — *Changwon, Republic of Korea*
Assistant professor — *Mar. 2017, - present*

POSTECH — *Pohang, Republic of Korea*
Post Doctorate Researcher — *Dec. 2016, - Feb. 2017*

- Crystal plasticity modeling and simulations to predict bauschinger effects

Clemson University — *Greenville, SC, USA*
Research Scientist — *Mar. 2016, - Nov. 2016*

- Formability predictions using VPSC-FLD
- Abaqus UMAT development

National Institute of Standards and Technology — *Gaithersburg, MD, USA*
Post Doctorate Researcher — *Jan. 2014, - Feb. 2016*

- Conducted a series of experiments to obtain multiaxial constitutive behavior of an interstitial-free steel
- Measured multiaxial flow stress using X-ray diffraction for metal sheets subjected to various multiaxial loading conditions (DiffStress package)
- Performed the strain analysis using digital image correlation technique to determine the forming limit diagram of the IF steel
- Developed the VPSC-FLD model to predict forming limit diagram of engineering metal sheets (VPSC-FLD package)
- Developed VPSC-based model to link with continuum-scale phenomenological model (VPSC-RGVB-YLD forked from VPSC-FLD)

Los Alamos National Laboratory — *Los Alamos, NM, USA*
Research Affiliate — *Apr. 2012, - Sep. 2012*

Leading role in implementing a phase transformation kinetics model into Elasto-ViscoPlastic Self-Consistent crystal plasticity model

National Institute of Standards and Technology — *Gaithersburg, MD, USA*
Guest Researcher — *June. 2011, - Dec. 2011*

Conducted experiments to obtain multiaxial stress-strain measurements using digital image correlation and in-situ X-ray technique

Skills

Programming	Python, Fortran, Bash script, C/C++, LaTeX, Matlab
Languages	Korean, English
Experimental Mechanics	Uniaxial tension, shear, hydraulic bulge test, biaxial tests using cruciform piece and Marciniak
Digital Image Correlation (DIC)	VIC3D, DICE
Diffraction experiments	Pole figure, crystallographic texture, phase fraction, residual stress measurements
Computer skills	Linux, Git, Abaqus (UMAT and Python script), Parallel computation
Constutitive modelling	Macro-mechanical description for anisotropic metals using anisotropic yield functions
Crystal plasticity	Viscoplastic self-consistent (VPSC) and Elasto-viscoplastic self-consistent crystal plasticity models

Journal Articles

An efficient elasto-visco-plastic self-consistent formulation: Application to steel subjected to loading path changes

Y. Jeong*, C N. Tomé

Submitted for publication

Modelling-assisted description of anisotropic edge failure in magnesium sheet alloy under mixed-mode loading

International Journal of Mechanical Science

Y. Jeong*, D Steglich

Accepted

Extension of the VPSC model to account for elasto-visco-plastic behavior using a perturbed viscoplastic approach

Modelling and Simulation in Materials Science and Engineering

Y. Jeong*, C. N. Tomé

Vol. 27(8) 085013, 2019

Superior tensile fracture strength of hot isostatically pressed TiC–steel metallic composite fabricated by a novel infiltration

Materials Science and Engineering: A

S. J. Park, Y. Jeong, C. W. Kim, J. H. Lee, S. C. Cho, S. B. Lee, S. K. Lee, D. H. Kim, H. U. Hong*

Vol. 764(9), 2019

Enhancement in viscoplastic self-consistent FLD prediction model and its application for austenitic and ferritic stainless steels

Metals and Materials International

Y. Jeong*, Timo Manninen

Vol. 25(6) pp1548-1563, 2019

A crystal plasticity model for describing the anisotropic hardening behavior of steel sheets during strain-path changes

International Journal of Plasticity

H. Kim, F Barlat, Y. Lee, S. Zaman, CS Lee, Y. Jeong*

Vol. 111 p85-106, 2018

A comparative study between micro- and macro-mechanical constitutive models developed for complex loading scenarios

International Journal of Plasticity

Y. Jeong*, F. Barlat, C. Tomé, W. Wen

Vol. 93 p212-228, 2017

Uncertainty in flow stress measurements using X-ray diffraction for sheet metals subjected to large plastic deformations

Journal of Applied Crystallography

Y. Jeong*, T. Gnäupel-Herold, M. Iadicola, A. Creuziger

Vol. 49 p1991-2004, 2016

Texture-based forming limit prediction for Mg sheet alloys ZE10 and AZ31

International Journal of Mechanical Sciences

D. Steglich, Y. Jeong*

Vol. 117 p102-114, 2016

Forming limit prediction using a self-consistent crystal plasticity framework: a case study for BCC fiber textures

Modelling and Simulation in Materials Science and Engineering

Y. Jeong*, M.-S. Pham, M. Iadicola, A. Creuziger, T. Foecke

Vol. 24(5), 055002 (21 pp), 2016

Multiaxial constitutive behavior of an interstitial-free steel: measurements through X-ray and digital image correlation

Acta Materialia

Y. Jeong*, M. Iadicola, T. Gnäupel-Herold, A. Creuziger

Vol. 112 p84-93, 2016

Effect of martensitic phase transformation on the behavior of 304 austenitic stainless steel under tension

Materials Science and Engineering A

H. Wang*, Y. Jeong, B. Clausen, Y. Liu, R. J. McCabe, F. Barlat, C. N. Tomé

Vol. 649 p174-183, 2016

Evaluation of biaxial flow stress based on Elasto-Viscoplastic Self-Consistent analysis of X-ray Diffraction Measurements

International Journal of Plasticity

Y. Jeong, T. Gnäupel-Herold, F. Barlat, M. Iadicola, A. Creuziger, M.-G. Lee*

Vol. 66 p103-118, 2015

Application of crystal plasticity to an austenitic stainless steel

Y. Jeong*, F. Barlat, M.-G. Lee

Modelling and Simulation in Materials Science and Engineering
Vol. 20 p024009, 2012

Biaxial Deformation Behavior of AZ31 Magnesium Alloy: Crystal-Plasticity-Based Prediction and Experimental Validation

D. Steglich*, Y. Jeong, M. O. Andar, T. Kuwabara

International Journal of Solids and Structure
Vol. 49(25) p3551-3561, 2012

Conference proceedings

Formability predictions and measurement of 316L stainless steel using self-consistent crystal plasticity

Y. Jeong*, Timo Manninen

Journal of Physics: Conference Series
Vol. 150673, 2018

Forming limits of dual phase steels using crystal plasticity in conjunction with MK approach

Y. Jeong*, S. Panich

Procedia Manufacturing
Vol. 15, 2018

Texture-based formability prediction for Mg wrought alloys ZE10 and AZ31

D. Steglich Y. Jeong

AIP Conference Proceedings
Vol. 1896, 020001, 2017

Advances in Constitutive Modeling of Plasticity for Forming Applications

F. Barlat, Y. Jeong, J. Ha, C Tomé, Myoung-Gyu Lee, W. Wen

Key Engineering Materials
Vol. 725, p3-14, 2017

Validation of Homogeneous Anisotropic Hardening Approach Based on Crystal Plasticity

Y. Jeong, F. Barlat, C. Tomé, W. Wen

AIP Conference Proceedings
Vol. 1769, 160001, 2016

Forming limit predictions using a self-consistent crystal plasticity model: a parametric study

Y. Jeong, M.-S. Pham, M. Iadicola, A. Creuziger

Key Engineering Materials
Vol. 651 p193-198, 2015

Microstructural and crystallographic aspects of yield surface evolution

Y. Jeong, F. Barlat, M.-G. Lee

Materials Science Forum
Vol. 702 p224-228, 2011

Crystal Plasticity Predictions of Forward-Reverse Simple Shear Flow Stress

Y. Jeong, F. Barlat, M.-G. Lee

Materials Science Forum
Vol. 702 p204-207, 2011

Synergestic Activities

2018- **Editorial board**, Korean J. Met. Mater. *S.Korea*
Review services, IJP, JALCOM, MMI, JOM, MMTA, MST, IJFO, MSEA ...