

Youngung Jeong

ASSISTANT PROFESSOR

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Education

POSTECH, Graduate Institute of Ferrous Technology

PHD

Pohang, Republic of Korea

Mar. 2010 - Feb. 2014

POSTECH, Graduate Institute of Ferrous Technology

MS

Pohang, Republic of Korea

Mar. 2008 - Feb. 2010

Hanyang University, Materials Science and Engineering

BS

Seoul, Republic of Korea

Mar. 2001 - Feb. 2008

Experience

Changwon National University

ASSISTANT PROFESSOR

Changwon, Republic of Korea

Mar. 2017, - present

POSTECH

POST DOCTORATE RESEARCHER

Pohang, Republic of Korea

Dec. 2016, - Feb. 2017

- Crystal plasticity modeling and simulations to predict baushinger effects

Clemson University

RESEARCH SCIENTIST

Greenville, SC, USA

Mar. 2016, - Nov. 2016

- Formability predictions using VPSC-FLD
- Abaqus UMAT development

National Institute of Standards and Technology

POST DOCTORATE RESEARCHER

Gaithersburg, MD, USA

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

RESEARCH AFFILIATE

Los Alamos, NM, USA

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

GUEST RESEARCHER

Gaithersburg, MD, USA

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

Constitutive 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

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

Y. JEONG*, C. N. TOMÉ

in preparation

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

Y. JEONG*, D. STEGLICH

submitted

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

Y. JEONG*, C. N. TOMÉ

*Modelling and Simulation in
Materials Science and Engineering*
Vol. 27(8) 085013, 2019

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

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*

*Materials Science and Engineering:
A*
Vol. 764(9), 2019

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

Y. JEONG*, TIMO MANNINEN

Metals and Materials International
Vol. 25(6) pp1548-1563, 2019

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

H. KIM, F. BARLAT, Y. LEE, S. ZAMAN, CS LEE, Y. JEONG*

International Journal of Plasticity
Vol. 111 p85-106, 2018

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

Y. JEONG*, F. BARLAT, C. TOMÉ, W. WEN

International Journal of Plasticity
Vol. 93 p212-228, 2017

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

Y. JEONG*, T. GNÄUPEL-HEROLD, M. IADICOLA, A. CREUZIGER

Journal of Applied Crystallography
Vol. 49 p1991-2004, 2016

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

D. STEGLICH, Y. JEONG*

*International Journal of Mechanical
Sciences*
Vol. 117 p102-114, 2016

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

Y. JEONG*, M.-S. PHAM, M. IADICOLA, A. CREUZIGER, T. FOCKE

*Modelling and Simulation in
Materials Science and Engineering*
Vol. 24(5), 055002 (21 pp), 2016

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

Y. JEONG*, M. IADICOLA, T. GNÄUPEL-HEROLD, A. CREUZIGER

Acta Materialia
Vol. 112 p84-93, 2016

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

H. WANG*, Y. JEONG, B. CLAUSEN, Y. LIU, R. J. MCCABE, F. BARLAT, C. N. TOMÉ

Materials Science and Engineering A
Vol. 649 p174-183, 2016

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

Y. JEONG, T. GNÄUPEL-HEROLD, F. BARLAT, M. IADICOLA, A. CREUZIGER, M.-G. LEE*

International Journal of Plasticity
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

Synergistic Activities

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

S.Korea