

# 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

Mar. 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

*International Journal of Plasticity*

*In Press*

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

Y. JEONG\*, D. STEGLICH

*International Journal of Mechanical Sciences*

*Vol. 181, 105680, 2020*

## **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

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### 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

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

*S.Korea*