



SHORT RESUME of Professor Frédéric Barlat

Director, Materials Mechanics Laboratory (MML)
Graduate Institute of Ferrous Technology (GIFT)
Pohang University of Science and Technology
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Gyeongbuk 790-784, Republic of Korea

Professor Barlat received a PhD in Mechanics from the “Institut National Polytechnique de Grenoble,” France, in 1984. The same year, he joined Alcoa Technical Center near Pittsburgh, Pennsylvania, USA, the research facility of Alcoa Inc., where he conducted scientific research for more than 20 years. Dr. Barlat is currently a full professor at the Pohang University of Science and Technology (POSTECH) in the Republic of Korea and the director of the Materials Mechanics Laboratory (MML) at the Graduate Institute of Ferrous Technology (GIFT). In MML, Professor Barlat develops innovative forming and manufacturing technologies for steel process and product applications. Professor Barlat is also an Invited Full Professor and Member of the Board of Directors at the Centre for Mechanical Technology and Automation (TEMA), University of Aveiro (Portugal), and an honorary professor at the Technical University of Cluj-Napoca in Romania. He has actively participated in the scientific committees of various international conferences and was the chairman of the 10th International Conference on Numerical Methods in Industrial Forming Processes (NUMIFORM 2010), which was held in 2010 on POSTECH Campus. He now acts as a co-chairman of the 7th International conference and Workshop on Numerical Simulations of Sheet Metal Forming Processes (NUMISHEET 2011) to be held in Seoul in August 2011. Professor Barlat is a member of the Executive Editorial Board of Modeling and Simulations in Materials Science and Engineering and Associate Editor of the International Journal of Material Forming. He also serves as a member of the Advisory Boards of the International Journal of Plasticity, Metals and Materials International and ISIJ International. Dr. Barlat has published approximately 250 articles, half in peer-reviewed scientific journals and the other half in international conferences. He holds three US patents with co-inventors from Alcoa Inc. and Kobe Steel, Ltd., Japan. In 1995, he was the honored recipient of the ASM Henry Marion Howe Medal of the Material Society for the best technical paper published in Metallurgical Transactions A. He received the 2006 International Journal of Plasticity Award for Outstanding Contributions to the Field of Plasticity. The same year, he was featured by the Thomson Scientific Essential Science IndicatorsSM for an article published in 2003 as one of the most cited papers in the field of Engineering, a recognition which spotlights current and emerging trends in specialized areas of research.

RESUME of Frédéric Barlat

PERSONAL INFORMATION

Date of birth: 1957-04-07

Place of birth: Barbezieux, France

Current address: Gyeongju, Gyeonkbuk, Republic of Korea

Citizenship: United State of America, France

AFFILIATIONS

Full Professor

Director of Materials Mechanics Laboratory (MML)

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Invited Full Professor and Member of the Board of Directors, Centre for Mechanical Technology & Automation (TEMA), University of Aveiro

Coordinator of the Plasticity and Forming Group, Centre for Mechanical Technology & Automation (TEMA), University of Aveiro

Campus Universitario de Santiago, P-3810 Aveiro, Portugal

fbarlat@mec.ua.pt

FOREIGN LANGUAGES

French (native), English

German (beginner), Japanese (beginner), Korean (beginner)

EDUCATION

Diplôme de Docteur-Ingénieur, Spécialité Mécanique (PhD - Mechanics), 1984, Institut National Polytechnique de Grenoble, France.

Diplôme d'Etudes Approfondie de Génie Mécanique, (Master's Degree in Mechanical Engineering), 1980, Ecole Nationale Supérieure d'Arts et Métiers, Paris, France.

Diplôme d'Ingénieur (Engineer Diploma) with Silver Medal (top 10 percent graduate), 1980, Ecole Nationale Supérieure d'Arts et Métiers, Paris, France.

EXPERIENCE

2007-present: Professor, Graduate Institute of Ferrous Technology (GIFT), Pohang University of Science and Technology (POSTECH), Pohang, Korea. Director of the Materials Mechanics Laboratory.

1987–2007: Senior Engineer to Technology Specialist, Alcoa Inc., Alcoa Technical Center, Alcoa Center, PA, USA. Conceive, develop, and conduct broad-based project related to mathematical modeling of microstructure/mechanical property relationships for a variety of materials.

1986–1987: Assistant Professor, Institut National Polytechnique de Grenoble, France. Conducted research related to sheet forming. Taught undergraduate Strength of Materials, Mechanical Design, Numerical Analysis and Programming courses.

1984–1986: Engineer (Post-Doctoral Position), Aluminum Company of America, Alcoa Technical Center. Developed mathematical models related to sheet forming and formability.

1982–1984: Institut National Polytechnique de Grenoble, France, Graduate student.

1981–1982: Université de Metz, France, Graduate student. Taught undergraduate Logic and Automation class.

CURRENT POSITION, EXPERTISE AND TECHNICAL SKILLS

Director of the Materials Mechanics Laboratory at GIFT, responsible for developing and implementing a program dealing with product manufacturing such as sheet metal forming as well as product performance such as resistance to fracture. This program has long term objectives and strong theoretical foundations but it is designed to result in short term spin-off applications, particularly for steel products, in order to support the steel industry.

Expertise in continuum mechanics, fracture mechanics, metal plasticity, isotropic and anisotropic plasticity, constitutive behavior modeling, formability, metal forming, fracture, fatigue, single and polycrystal plasticity, crystallographic texture, internal damage and porosity, microstructure/property relationships.

Technical skills include mathematical modeling in the area of Materials Science, Manufacturing and Engineering, and programming (Fortran, Pascal). Some experience in scanning electron microscopy.

PROFESSIONAL ORGANIZATIONS AND ACTIVITIES

Member of the **Korean Society on Technology of Plasticity (KSTP)**

Member of the **Minerals, Metals and Materials Society (TMS)**

Member of the **American Society of Mechanical Engineers (ASME)**

Member of the **Association for Iron and Steel Institute (AIST)**

Member of **Sigma Xi**, the Scientific Society. Sigma Xi Alcoa Chapter President during 1997-1998.

Associate Editor of **International Journal of Materials Forming** (2011-01-01~)

Executive Editorial Board Member (Associate Editor) of **Modeling and Simulations in Materials Science and Engineering** (2010-03-01~)

Advisory Board Member of **International Journal of Plasticity** (2001-04-01~)

Editorial Board Member of **Metals and Materials International** (2008-01-01~)

Advisory Board Member of **ISIJ International**, The Iron and Steel Institute of Japan (2011-01-01~2014-12-31)

Member of the scientific committee of the Research Center on Sheet Metal Forming (CERTETA), The Technical University of Cluj-Napoca, Romania. (2005-04-01)

Reviewer for **Acta Materialia**; **Computational Materials Science**; **Experimental Mechanics**; **European Journal of Mechanics**; **International Journal of Mechanical Sciences**; **International Journal of Material Forming**; **International Journal of Plasticity**; **International Journal of Solids and Structures**; **Journal of Engineering Material Technology**; **Journal of Material Processing Technology**; **Journal of Materials Engineering and Performance**; **Materials Transactions**; **Mechanics of Materials**; **Modeling and Simulations in Materials Science and Engineering**; **Scripta Materialia**; **Zeitschrift für Angewandte Mathematik und Mechanik**.

- Co-Chairman of the NUMISHEET 2011 Conference (2008-09-01~)

- Chairman of the NUMIFORM 2010 Conference (2010-06-13 to 17)

- Member of the Scientific Committee of various conferences

1. ICTP 2011, The 10th International Conference on Technology of Plasticity, Aachen, Germany, September 25-30, 2011
2. ESAFORM 2011, The 14th International Conference on Material Forming, 2011
3. ICMM2, The 2nd International Conference on Material Modelling, 2011, Paris, France
4. AMPT 2010, Conference on Advances in Materials and Processing Technologies, Paris, France, October 24-27, 2010
5. ESAFORM 2010, The 13th International Conference on Material Forming, University of Brescia, Italy, April 27-29, 2010
6. ICMM1, The 1st International Conference on Material Modelling, September 15-17, 2009, Dortmund, Germany
7. ESAFORM 2009, The 12th International ESAFORM Conference on Material Forming, University of Twente, The Netherlands, April 27-29, 2009
8. PLASTICITY'09, The 15th International Symposium on Plasticity and its Current Applications, St Thomas, US Virgin Island, January 3-9, 2009
9. NUMISHEET 2008, The 7th International conference and Workshop on Numerical Simulations of Sheet Metal Forming Processes, Interlaken, Switzerland, September 1-5, 2008

10. ESAFORM 2008, The 11th International ESAFORM Conference on Material Forming, Lyon, France, April 23-25, 2008
11. ICTP 2008, The 9th International Conference on Technology of Plasticity, Gyeongju, Korea, September 7-11, 2008
12. IMPLAST '07, The Ninth Symposium on Plasticity and Impact mechanics, Bochum, Germany, August 21-24, 2007
13. NUMIFORM '07, The 9th International Conference on Numerical Methods of Industrial Forming Processes, Porto, Portugal, June 17-21, 2007
14. ESAFORM 2007, The 10th International Conference on Material Forming, Zaragoza, Spain. (Yearly conference organized by the European Scientific Association for Material Forming (ESAFORM), April 18-20, 2007
15. DSL 2006, The Second International Conference on Diffusion in Solids and Liquids, University of Aveiro, Portugal, July 26-28, 2006
16. DSL 2005, The First International Conference on Diffusion in Solids and Liquids, University of Aveiro, Portugal, July 6-8, 2005
17. NUMISHEET '05, The 6th International Conference and Workshop on Numerical Simulation of 3D Sheet Metal Forming Processes, Detroit, MI, USA, Aug. 15-19, 2005
18. ESAFORM 2005, The 8th International Conference on Material Forming, Cluj-Napoca, Romania. (Yearly conference organized by the European Scientific Association for Material Forming (ESAFORM), April 27-29, 2005
19. NUMIFORM '04, The 8th International Conference on Numerical Simulations in Industrial Forming Processes, The Ohio State University, OH, June 13-17, 2004
20. EMMC 2002, Euromech-Mecamat Conference on Nonlinear Mechanics of Anisotropic Materials, Liege, Belgium, September 2002
21. NUMISHEET '02, The 5th International Conference & Workshop on Numerical Simulations of 3D Sheet Forming Processes, Jeju Island, South Korea, October 2002
22. MATERIAIS 2001, The First International Symposium on Materials, Coimbra, Portugal, April 2001
23. COM 2000, Symposium on Mathematical Modeling in Metal Processing and Manufacturing, Ottawa, Canada, August 2000
24. NUMISHEET '99, The 4th International Conference & Workshop on Numerical Simulations of 3D Sheet Forming Processes, Besançon, France, September 1999

Organizer of special sessions at international conferences

1. "Material Behaviour and Formability," The 14th International ESAFORM Conference on Material Forming, University of Dublin, Ireland, April 27-29, 2011 (Yearly conference organized by the European Scientific Association for Material Forming, ESAFORM)
2. IUTAM, Oana

3. "Elasto-plasticity," The 2nd International Conference on Material Modelling, September 2011, Paris, France (with Professor F. Dunne, Oxford University, UK)
4. "Material Behaviour and Formability," The 13th International ESAFORM Conference on Material Forming, University of Brescia, Italy, April 27-29, 2010 (Yearly conference organized by the European Scientific Association for Material Forming, ESAFORM)
5. "Elasto-plasticity," The 1st International Conference on Material Modelling, September 15-17, 2009, Dortmund, Germany (with Professor F. Dunne, Oxford University, UK)
6. "Plastic Flow in Two-phase Materials." The 15th International Symposium on Plasticity and its Current Applications, St Thomas, US Virgin Island, January 3-9, 2009 (with Professor S.-H. Choi, Suncheon University, Korea)
7. "Material Behaviour and Formability," The 12th International ESAFORM Conference on Material Forming, University of Twente, The Netherlands, April 27-29, 2009 (Yearly conference organized by the European Scientific Association for Material Forming, ESAFORM)
8. "Anisotropy and Formability of Materials," The 11th International Conference on Material Forming, Saragossa, Spain. (Yearly conference organized by the European Scientific Association for Material Forming, ESAFORM), April 2008
9. "Material Modeling," The 7th International Conference and Workshop on Numerical Simulation of 3D Sheet Metal Forming Processes, Switzerland, Sept. 2008
10. "Anisotropy and Formability of Materials," The 10th International Conference on Material Forming, Saragossa, Spain. (Yearly conference organized by the European Scientific Association for Material Forming, ESAFORM), April 2007
11. "Metal Forming," The 12th International Symposium on Plasticity, Halifax, Nova Scotia, Canada, July 2006 (with Dr. Jeong-Whan Yoon, Alcoa Inc.)
12. "Crack Tip Plasticity," The 12th International Symposium on Plasticity, Halifax, Nova Scotia, Canada, July 2006
13. "Anisotropy and Formability of Materials," The 8th International Conference on Material Forming, Cluj-Napoca, Romania. (Yearly conference organized by the European Scientific Association for Material Forming, ESAFORM), April 27-29, 2005
14. "Symposium on Applied and Fundamental Aspects of Sheet Forming Honoring Professor Robert H. Wagoner," The 8th International Conference on Numerical Simulations in Industrial Forming Processes, The Ohio State University, OH, June 13-17, 2004
15. "Composition-Sensitive Deformation Models for Cubic Materials," The 9th International Symposium on Plasticity, Aruba, January 2002
16. "Metal Forming," The 7th International Symposium on Plasticity and Its Current Applications, Cancun, Mexico, January 1999 (with Dr. Ming Li, Alcoa Inc.)

HONORS

2006 IJP Award

2006 International Journal of Plasticity Award for Outstanding Contributions to the Field of Plasticity.

2006 Thomson Scientific Essential Science IndicatorsSM

For one of the most cited papers in the field of Engineering, “Plane stress yield function for aluminum alloy sheets - part 1: theory” as published in the journal “International Journal of Plasticity” in 2003. This award spotlights current and emerging trends in specialized areas of research.

Best Technical Paper 2006

Awarded by Sigma Xi, The Scientific Research Society, Alcoa Chapter, for the best technical paper written by Alcoa employees and published in a scientific journal in 2005, Yoon, J.W., Barlat, F., Gracio, J.J., Rauch, E., 2005. Anisotropic strain hardening behavior in simple shear for cube textured aluminum alloy sheets. **Int. J. Plasticity** 21, 2426-2447.

Honorary Professor (since 2005)

Technical University of Cluj-Napoca, The Faculty of Machine Building
B-dul Muncii nr. 103-105, 400641 Cluj-Napoca, Romania.

1995 Henry Marion Howe Medal

Awarded by the International Society for Materials Engineers and Scientists (**ASM International**) for the best technical papers published in **Metallurgical Transactions A** in 1994. Barlat, F., Chung, K., Richmond, O., 1994. Anisotropic Potentials for Polycrystals and Application to the Design of Optimum Blank Shapes in Sheet Forming. **Metallurgical Transactions 25A**, 1209-1216.

Best Technical Paper 1997

Awarded by Sigma Xi, The Scientific Research Society, Alcoa Chapter, for the best technical paper written by Alcoa employees and published in a scientific journal in 1997, Barlat, F., Maeda, Y., Chung, K., Yanagawa, M., Brem, J.C., Hayashida, Y., Lege, D.J., Matsui, K., Murtha, S.J., Hattori, S., Becker, R.C., Makosey, S., 1997. Yield Function Development for Aluminum Alloy Sheets. **J. Mech. Phys. Solids** 45, 1727-1763.

Best Technical Paper 1989

Awarded by Sigma Xi, The Scientific Research Society, Alcoa Chapter, for the best technical paper written by Alcoa employees and published in a scientific journal in 1989, Lege, D.J., Barlat, F., Brem, J.C., 1989. Characterization and Modeling of the Mechanical Behavior and Formability of a 2008-T4 Sheet Sample. **International Journal of Mechanical Science** 31, 549-563.

Best Technical Paper 1987

Awarded by Sigma Xi, The Scientific Research Society, Alcoa Chapter, for the best technical paper written by Alcoa employees and published in a scientific journal in 1987, Barlat, F., Richmond, O., 1987. Prediction of Tricomponent Plane Stress Yield Surfaces and Associated Flow and Failure Behavior of Strongly Textured FCC Sheets. **Materials Science and Engineering** **95**, 15-29.

PUBLICATION IMPACT

As July 22, 2010 ([Thomson-Reuter](#)) – Number papers: 140 (see also Barlat f*)

Number citations: 2894, h-factor 28; Average citation per item 20.7

As March 13, 2011 ([Scopus](#)) – Number papers: 147

Number citations: 3198, h-factor 28; Average citation per item 21.8

Most cited publications (>70 citations)

1. Barlat, F., Lian, J., 1989. Plastic behavior and stretchability of sheet metals. Part I: A yield function for orthotropic sheets under plane stress conditions, **Int. J. Plasticity** **5**, 51-66. [[Thomson Reuter: 328](#); [Scopus: 346](#)]
2. Barlat, F., Lege, D.J., Brem, J.C., 1991. A six-component yield function for anisotropic materials, **Int. J. Plasticity** **7**, 693-712. [[Thomson Reuter: 288](#); [Scopus: 291](#)].
3. Barlat, F., Brem, J.C., Yoon, J.W., Chung, K., Dick, R.E., Lege, D.J., Pourboghrat, F., Choi, S.-H., Chu, E., 2003. Plane stress yield function for aluminum alloy sheets–Part I: theory. **Int. J. Plasticity** **19**, 1297-1319. [[Thomson Reuter: 171](#); [Scopus: 236](#)].
4. Barlat, F., Maeda, Y., Chung, K., Yanagawa, M., Brem, J.C., Hayashida, Y., Lege, D.J., Matsui, K., Murtha, S.J., Hattori, S., Becker, R.C., Makosey, S., 1997. Yield function development for aluminum alloy sheets, **J. Mech. Phys. Solids** **45**, 1727-1763. [[Thomson Reuter: 175](#); [Scopus: 189](#)].
5. Barlat, F., Aretz, H., Yoon, J.W., Karabin, M.E., Brem, J.C., Dick, R.E., 2005. Linear transformation-based anisotropic yield functions. **Int. J. Plasticity** **21**, 1009–1039. [[Thomson Reuter: 85](#); [Scopus: 106](#)].
6. Barlat, F., 1987. Crystallographic texture, anisotropic yield surfaces and forming limits of sheet metals, **Mat. Sci. Eng.** **91**, 55-72. [[Thomson Reuter: 119](#); [Scopus: 102](#)].
7. Barlat, F., Becker, R.C., Hayashida, Y., Maeda, Y., Yanagawa, M., Chung, K., Brem, J.C., Lege, D.J., Matsui, K., Murtha, S.J., Hattori, S., 1997. Yielding description of solution strengthened aluminum alloys, **Int. J. Plasticity** **13**, 385-401. [[Thomson Reuters: 80](#); [Scopus: 88](#)].
8. Barlat, F., Richmond, O., 1987. Prediction of tricomponent plane stress yield surfaces and associated flow and failure behavior of strongly textured fcc sheets, **Mat. Sci. Eng.** **95**, 15-29. [[Thomson Reuters: 87](#); [Scopus: 73](#)].

These publications are related to crystallographic texture in aluminum alloys, its effects on plastic anisotropy, and its connection to phenomenological constitutive modeling suitable for numerical simulations of sheet metal forming. They have motivated many engineers and scientists in this field. The constitutive models developed in these and subsequent papers are now standard in commercial Finite Element software such as ABAQUS, DYNA-3D or MARC.

Top 10 papers in International Journal of Plasticity

The international Journal of Plasticity (IJP) is one for the top journal in the field of mechanics and mechanical engineering with an impact factor of 4.8. The all-time top 10 cited papers in this journal are listed on the corresponding website (see list below as of January 15, 2011)

http://www.elsevier.com/wps/find/journaldescription.cws_home/762/description#description

Among the top 10, 3 were authored by Professor Barlat.

Citation #	Reference
388	Constitutive equations for cyclic plasticity and cyclic viscoplasticity Volume 5, Issue 3, 1989, Pp 247-302 Chaboche, J.L.
346	Plastic behavior and stretchability of sheet metals. Part I: A yield function for orthotropic sheets under plane stress conditions Volume 5, Issue 1, 1989, Pp 51-66 Barlat, F. Lian, K.
302	A thermodynamical constitutive model for shape memory materials. Part I. The monolithic shape memory alloy Volume 12, Issue 6, 1996, Pp 805-842 Boyd, J.G. Lagoudas, D.C.
291	A six-component yield function for anisotropic materials Volume 7, Issue 7, 1991, Pp 693-712 Barlat, F. Lege, D.J. Brem, J.C.
288	Kinematic hardening rules with critical state of dynamic recovery, part I: formulation and basic features for ratchetting behavior Volume 9, Issue 3, 1993, Pp 375-390 Ohno, N. Wang, J.-D.
281	Time-independent constitutive theories for cyclic plasticity Volume 2, Issue 2, 1986, Pp 149-188 Chaboche, J.L.
258	The physics of plastic deformation Volume 3, Issue 3, 1987, Pp 211-247 Aifantis, E.C.
236	Plane stress yield function for aluminum alloy sheets - Part 1: Theory Volume 19, Issue 9, 2003, Pp 1297-1319 Barlat, F. Brem, J.C. Yoon, J.W. Chung, K. Dick, R.E. Lege, D.J. Pourboghrat, F. Choi, S.-H. Chu, E.

- 225 On some modifications of kinematic hardening to improve the description of ratchetting effects
Volume 7, Issue 7, 1991, Pp 661-678
Chaboche, J.L.
- 214 Plastic anisotropy and the role of non-basal slip in magnesium alloy AZ31B
Volume 21, Issue 6, 2005, Pp 1161-1193
Agnew, S.R. | Duygulu, O.

PATENTS

1. Al-Mg based alloy sheets with good press formability, Barlat, F., Brem, J.C., Hattori, S., Hayashida, Y., Lege, D.J., Maeda, Y., Matsui, K., Murtha, S.J., Yanagawa, M., Chung, K., Hashimoto, N., **U.S. Patent 6,117,252** issued to Alcoa and Kobe Steel on September 12, 2000.
2. Al-Mg based alloy sheets with good press formability, Barlat, F., Brem, J.C., Hattori, S., Hayashida, Y., Lege, D.J., Maeda, Y., Matsui, K., Murtha, S.J., Yanagawa, M., Chung, K., Hashimoto, N., **U.S. Patent 6,221,182** issued to Alcoa and Kobe Steel on April 24, 2001.
3. Al-Mg based alloy sheets with good press formability, Barlat, F., Brem, J.C., Hattori, S., Hayashida, Y., Lege, D.J., Maeda, Y., Matsui, K., Murtha, S.J., Yanagawa, M., Chung, K., Hashimoto, N., **U.S. Patent 6,342,112** issued to Alcoa and Kobe Steel on January 29, 2002.

PUBLICATIONS

Thesis

Frédéric Barlat, 1984. Endommagement, anisotropie et courbes limites de formage. 'Docteur-Ingénieur' Thesis, Institut National Polytechnique de Grenoble, May 14, 1984.

Books and Conference Proceedings editor

1. Editor with Professor Y.H. Moon and M.G. Lee of the 10th International Conference on Numerical Methods in Industrial Forming Processes, NUMIFORM 2010, AIP Conference Proceedings 1252, 2010.
2. Guest Editor with Professor A. Öchsner and J.J. Gracio, (University of Aveiro, Portugal) of a Special Issue of **Materialwissenschaft und Werkstofftechnik** on Diffusion in Solids and Liquids, Vol. 36, Issue 10, 2005.
3. Co-editor of the Proceedings of the First International Conference on **Diffusion in Solids and Liquids** (DSL 2005): Öchsner, A., Gracio, J.J., Barlat, F., (Eds), Mediamira, Cluj-Napoca (Romania), 2005.

4. Co-editor of a book: **Continuum Scale Simulation of Engineering Materials Fundamentals - Microstructures - Process Applications**. Raabe, D., Roters, F., Barlat, F., Chen, L.-Q., (Eds), Wiley-VCH Verlag GmbH, Berlin, 2004.
5. Guest Editor with Dr. Hasso Weiland (Alcoa Inc.) of a Special Issue of **International Journal of Plasticity** on Composition Sensitive Plasticity Models for Cubic Materials, dedicated to the Memory of Dr. Owen Richmond, Vol. 20, Number 3, 2004.
6. Guest Editor with Dr. Ming Li (Alcoa Inc.) of Issue No. 6, of **International Journal of Plasticity** on Metal Forming, Vol. 16, Number 6, 2000.

Peer-Reviewed Articles

1. Xu, L., Barlat, F., Ahn, D.C., Bressan, J.D., 2011. Forming limit and fracture mechanism of ferritic stainless steel sheets. **Mater. Sci. Eng. A** **528**, 3113–3121. doi:10.1016/j.msea.2011.01.011.
2. M'Guil, S., Ahzi, S., Barlat, F., Gracio, J.J., 2011. Microstructural effects on yield surface evolution in cubic metals using the viscoplastic ϕ -model. **International Journal of Plasticity** **27**, 102-120.
3. Soare, S., Barlat, F., 2010. Convex polynomial yield functions. **Journal of Mechanics and Physics of Solids** **58**, 1804-1818. doi:10.1016/j.jmps.2010.08.005.
4. Xu, L., Chen, L., Steglich, D., De Cooman, B.C., Barlat, F., 2010. Modeling the behavior and formability of high Mn steel. **Steel Research International** **81**, 1352-1355.
5. Butuc, M.C., Barlat, F., Gracio, J.J., Barata da Rocha, A., 2010. A new model for FLD prediction based on advanced constitutive equations. **Int. J. Material Forming** **3**, 191-204. doi: 10.1007/s12289-009-0667-6.
6. Banabic, D., Barlat, F., Cazacu, O., Kuwabara, T., 2010. Advances in Anisotropy and Formability. **Int. J. Material Forming** **3**, 165-189. doi: 10.1007/s12289-010-0992-9.
7. De Cooman, B.C., Bhadeshia, H.K.D.H., Barlat, F., 2010. Advanced Steel Design by Multi-Scale Modeling. **Materials Science Forum** **654-656**, 41-46. doi:10.4028/www.scientific.net/MSF.654-656.41.
8. Xu, L., Barlat, F., Ahn, D.C., 2009. Constitutive modeling of ferritic stainless steel. **Int. J. Material Forming** **3**, 135–145. doi: 10.1007/s12289-009-0666-7.
9. Andrade-Campos, A., Teixeira-Dias, F., Krupp, U., Barlat, F., Rauch, E.F., Gràcio, J.J., 2010. Effect of Strain Rate, Adiabatic Heating and Phase Transformation Phenomena on the Mechanical Behaviour of Stainless Steel. **Strain** **46**, 283-297. doi: 10.1111/j.1475-1305.2008.00572.x.
10. Rousselier, G., Barlat, F., Yoon, J.W., 2010. A novel approach for anisotropic hardening modeling. Part II: Anisotropic hardening in proportional and non-proportional loadings, application to initially isotropic material. **International Journal of Plasticity** **26**, 1029-1049. doi:10.1016/j.ijplas.2010.01.001.

11. Rousselier, G., Barlat, F., Yoon, J.W., 2009. A novel approach for anisotropic hardening modeling. Part I: Theory and its application to finite element analysis of deep drawing. **International Journal of Plasticity** 25, 2383-2409. doi:10.1016/j.ijplas.2009.04.002.
12. Kalyanama, S., Beaudoin, A.J., Dodds, Jr, R.H., Barlat, F., 2009. Delamination cracking in advanced aluminum-lithium alloys - Experimental and computational studies. **Engineering Fracture Mechanics** 76, 2174-2191.
13. Kim, J.H., Barlat, F., Kim, C., Chung, K., 2009. Thermo-mechanical and microstructural modeling of friction stir welding of 6111-T4 aluminum alloys. **Metals and Materials International** 15, 125-132.
14. Rabahallah, M., Balan, T., Barlat, F., 2009. Application of strain rate potentials with multiple linear transformations to the description of polycrystal plasticity. **Int. J. Solids Structures** 46, 1966-1974.
15. Rabahallah, M., Balan, T., Bouvier, S., Bacroix, B., Barlat, F., Chung, K., Teodosiu, C., 2009. Parameter identification of advanced plastic strain rate potentials and impact on plastic anisotropy prediction. **International Journal of Plasticity** 25, 491-512.
16. Karabin, M.E., Barlat, F., Shuey, R.T., 2009. Finite element modeling of plane strain toughness for 7085 aluminum alloy. **Metallurgical and Materials Transactions A40**, 354-364.
17. Shuey, R.T., Barlat, F., Karabin, M.E., Chakrabarti, D.J., 2009. Experimental and analytical investigations on plane strain toughness for 7085 aluminum alloy. **Metallurgical and Materials Transactions A40**, 365-376.
18. Cazacu, O., Barlat, F., 2008. Modeling plastic anisotropy and strength differential effects in metallic materials. In: **Multiscale modeling of heterogeneous materials: From microstructure to macro-scale properties**, Cazacu, O., (Ed.), ISTE Ltd and John Wiley Inc., pp. 71-87.
19. Kim, J.H., Lee, M.G., Barlat, F., Wagoner, R.H., Chung, K.C., 2008. An elasto-plastic constitutive model with plastic strain rate potentials for anisotropic cubic metals. **Int. J. Plasticity** 24, 2298-2334.
20. Simões, F.J.P., Sousa, R.J.A., Grácio, J.J.A., Barlat, F., Yoon, J.W., 2008. Mechanical behavior of an asymmetrically rolled and annealed 1050-O sheet. **Intern. J. Mechanical Sciences** 50, 1372-1380.
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22. Pourboghrat, F., Guan, Y., Barlat, F., 2008. Finite element analysis of aluminum tube hydroforming based on non-quadratic yield function. **Int. J. Manufacturing Technology and Management** 14, 84-99.
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