



Charles Hatchett Award-Winning Papers 1979-2020

2020	Jieun Yang, Abdul Rahman Mohmad, Yan Wang, Raymond Fullon, Xiuju Song, Fang Zhao, Ibrahim Bozkurt, Mathias Augustin, Elton J. G. Santos, Hyeon Suk Shin, Wenjing Zhang, Damien Voiry, Hu Young Jeong* & Manish Chhowalla "Ultrahigh-current-density Niobium Disulfide Catalysts for Hydrogen Evolution" Nature Materials, 18 (2019), 1309-1314
2019	K.J. Griffith, K.M. Wiaderek, G. Cibir, L.E. Marbella and C.P. Grey "Niobium tungsten oxides for high-rate lithium-ion energy storage" Nature, 559 (2018), 556-563
2018	D. Chen, J-H Wang, T-F Chou, B. Zhao, M.A. El-Sayed and M. Liu "Unraveling the Nature of Anomalous Fast Energy Storage in T-Nb ₂ O ₅ " Journal of the American Chemical Society, 139 (2017), 7071-7081
2017	J. Takahashi, K. Kawakami, J. Hamada, K. Kimura "Direct observation of niobium segregation to dislocations in steel" Acta Materialia, 107 (2016) 415-422
2016	(a) M. Nowak, L. Bolzoni and N. Hari Babu "Grain Refinement of Al-Si alloys by Nb-B Inoculation. Part I: Concept Development and Effect on Binary Alloys" Materials and Design, 66A (2015) 366-375 (b) M. Nowak, L. Bolzoni and N. Hari Babu "Grain Refinement of Al-Si alloys by Nb-B Inoculation. Part II: Application to Commercial Alloys" Materials and Design, 66A (2015) 376-383
2015	B. Kuhn, M. Talik, L. Niewolak, J. Zurek, H. Hattendorf, P.J. Ennis, W.J. Quadackers, T. Beck and L. Singheiser "Development of High Chromium Ferritic Steels Strengthened by Intermetallic Phases" Materials Science & Engineering A, 594 (2014) 372-380
2014	(a) A. Iza-Mendia, M.A. Altuna, B. Pereda and I. Gutierrez "Precipitation of Nb in Ferrite After Austenite Conditioning. Part I: Microstructural Characterization" Metallurgical and Materials Transactions A, 43A (2012) 4553-4570 (b) M.A. Altuna, A. Iza-Mendia, and I. Gutierrez "Precipitation of Nb in Ferrite after Austenite Conditioning. Part II: Strengthening Contribution in High-Strength Low-Alloy (HSLA) Steels" Metallurgical and Materials Transactions A, 43A (2012) 4571-4586

2013	J. Lu, O. Omotoso, J.B. Wiskel, D.G. Ivey and H.Henein "Strengthening Mechanisms and Their Relative Contributions to the Yield Strength of Microalloyed Steels" Metallurgical and Materials Transactions A, 43A (2012) 3043-3061
2012	K. Taylor, R. Bodnar, T. Nelson, S. Jansto, H. Tsosie, Z. Hu, S. Mostovoy and P. Nash "Evaluation of Low and Medium-Carbon Nb-Microalloyed Plate Steels for Wind Tower Applications" <i>Proceedings of International Symposium on Recent Developments in Plate Steels</i> , Winter Park, USA, Association for Iron & Steel Technology, (2011) 139-150
2011	C.L. Miao, C.J. Shang, G.D. Zhang and S.V. Subramanian "Recrystallization and Strain Accumulation Behaviors of High Nb-Bearing Line Pipe Steel in Plate and Strip Rolling" Materials Science & Engineering A, 527 (2010) 4985-4992
2010	S. Bremer, V. Flaxa and F.M. Knoop "A Novel Alloying Concept for Thermo-Mechanical Hot-Rolled Strip for Large Diameter HTS (Helical Two-Step) Line Pipe" <i>Proceedings of 2008 7th International Pipeline Conference</i> , Calgary, Alberta, Canada, The American Society of Mechanical Engineers (ASME), (September 29 – October 3, 2008) 489-485
2009	(a) K.A. Alogab, D.K. Matlock, J.G. Speer and H.J. Kleebe "The Influence of Niobium Microalloying on Austenite Grain Coarsening Behavior of Ti-modified SAE 8620 Steel" ISIJ International, 47 (2) (2007) 307-316 (b) K.A. Alogab, D.K. Matlock, J.G. Speer and H.J. Kleebe "The Effects of Heating Rate on Austenite Grain Growth in a Ti-Modified SAE 8620 Steel with Controlled Niobium Additions" ISIJ International, 47 (7) (2007) 1034-1041
2008	T. Urabe, Y. Ono, T. Fujita, Y. Yamasaki and Y. Hosoya "State-of-Art Nb-Bearing Cold-Rolled Steel Sheet for Automotive Application" <i>International Symposium on Niobium Microalloyed Sheet Steel for Automotive Application</i> , Araxa, MG, Brazil, The Minerals, Metals & Materials Society (TMS), (December 5 - 8, 2005) 409-425
2007	C.P. Reip, S. Shanmugam and R.D.K. Misra "High Strength Microalloyed CMn (V-Nb-Ti) and CMn (V-Nb) Pipeline Steels Processed through CSP Thin-Slab Technology: Microstructure, Precipitation and Mechanical Properties" Materials Science & Engineering A, 424 (2006) 307-317
2006	S. Hashimoto, S. Ikeda, K. Sugimoto and S. Miyake "Effects of Nb and Mo Addition to 0.2%C-1.5%Si-1.5%Mn Steel on Mechanical Properties of Hot Rolled TRIP-Aided Steel Sheets" ISIJ International, 44 (9) (2004) 1590-1598

2005	<p>(a) Y. Yamabe-Mitarai, Y. Gu and H. Harada “Compressive Strength and Creep Properties of Ir-Nb-Zr Alloys between 1473 and 2073 K” Metallurgical and Materials Transactions A, 34A, (2003), 2207-2215</p> <p>(b) Y.F. Gu, Y. Yamabe-Mitarai, S. Nakazawa and H. Harada “Creep Behaviors of an Ir-23Nb Alloy at Ultra-High Temperatures” Metallurgical and Materials Transactions A, 34A (2003) 2217-2221</p>
2004	<p>L.J. Baker, J.D. Parker and S.R. Daniel “Mechanism of Bake Hardening in Ultra Low Carbon Steel Containing Niobium and Titanium Additions” Materials Science and Technology, 18 (5) (2002) 541-547</p>
2003	<p>P. Uranga, A.I. Fernández, B. López and J.M. Rodriguez-Ibabe “Improvement of Microstructural Homogeneity in Thermomechanical Processed Nb Steels by Thin Slab Casting” <i>Proceedings of 43rd Mechanical Working and Steel Processing Conference</i>, Charlotte, North Carolina, Iron and Steel Society, 39 (October 28-31, 2001) 511-529</p>
2002	<p>F. Appel, U. Brossmann, U. Christoph, S. Eggert, P. Janschek, U. Lorenz, J. Müllauer, M. Oehring and J.D.H. Paul “Recent Progress in the Development of Gamma Titanium Aluminide Alloys” Advanced Engineering Materials, 2 (11) (2000) 699-720</p>
2001	<p>(a) K. Hulka, W. Bleck and K. Papamantellos “Relationships between Heat Treatment Conditions, Microstructure and Properties of Niobium Microalloyed TRIP Steel” <i>Proceedings of 41st Mechanical Working and Steel Processing Conference</i>, Baltimore, Maryland, Iron and Steel Society, 37 (October 24-27, 1999) 67-77</p> <p>(b) W. Bleck, S. Kranz, J. Ohlert and K. Papamantellos “Effect of the Testing Temperature on the Mechanical Behavior of Low and High Alloyed Steels Showing the TRIP Effect” <i>Proceedings of 41st Mechanical Working and Steel Processing Conference</i>, Baltimore, Maryland, Iron and Steel Society, 37 (October 24-27, 1999) 295-305</p>
2000	<p>(a) A. Schmitz, J. Neutjens, J.C. Herman and V. Leroy “New Thermomechanical Hot Rolling Schedule for the Processing of High Strength Fine Grained Multiphase Steels” <i>40th Mechanical Working and Steel Processing Conference</i>, Pittsburgh, Pennsylvania, Iron and Steel Society of AIME Staff, 36 (October 25 - 28, 1998) 295-309</p> <p>(b) J. Neutjens, P. Harlet, T. Bakolas and P. Cantinieaux “Processing and Properties of a New Hot-Rolled High-Strength Fine-Grained Multiphase Steel” <i>40th Mechanical Working and Steel Processing Conference</i>, Pittsburgh, Pennsylvania, Iron and Steel Society of AIME Staff, 36 (October 25 - 28, 1998) 311-321</p>

1999	(a) A.V. Samant and J.J. Lewandowski "Effects of Test Temperature, Grain Size and Alloy Additions on the Cleavage Fracture Stress of Polycrystalline Niobium" Metallurgical and Materials Transactions A, 28A (1997) 389-399
	(b) A.V. Samant and J.J. Lewandowski "Effects of Test Temperature, Grain Size and Alloy Additions on the Low-Temperature Fracture Toughness of Polycrystalline Niobium" Metallurgical and Materials Transactions A, 28A (1997) 2297-2307
1998	A. Itman, K.R. Cardoso and H.J. Kestenbach "Quantitative Study of Carbonitride Precipitation in Niobium and Titanium Microalloyed Hot Strip Metal" Materials Science and Technology, 13 (1997) 49-55
1997	(a) S. Lee, D. Kwon, Y.K. Lee and O. Kwon "Transformation Strengthening by Thermomechanical Treatments in C-Mn-Ni-Nb Steels" Metallurgical and Materials Transactions A, 26A (1995) 1093-1100
	(b) O. Kwon, K.J. Lee, J.K. Lee and K.B. Kang "Modeling of Austenite Evolution and Transformation for MA Strips" <i>Proceedings of Microalloying 95 Conference</i> , Pittsburgh, PA, USA, Iron and Steel Society, (June 11-14, 1995) 251-261
1996	(a) G.I. Rees, J. Perdrix, T. Maurickx and H.K.D.H. Bhadeshia "The Effect of Niobium in Solid Solution on the Transformation Kinetics of Bainite" Materials Science & Engineering A, 194 (1995) 179-186
	(b) C. Fossart, G. Rees, T. Maurickx and H.K.D.H. Bhadeshia "The Effect of Niobium on the Hardenability of Microalloyed Austenite" Metallurgical and Materials Transactions A, 26A (1995) 21-30
1995	E.J. Palmiere, C.I. Garcia and A.J. DeArdo "Compositional and Microstructural Changes which Attend Reheating and Grain Coarsening in Steels Containing Niobium" Metallurgical and Materials Transactions A, 25A (1994) 277-286
1994	H. Tamerhiro, Y. Terada, Y. Ogata, T. Yoshino, T. Horokawa, K. Katayama, R. Uemori, H. Ogawa, Y. Horii, H. Kashimura and J.M. Gray "CRA Clad UOE Pipe Produced by Applying TMCP Plate" <i>Proceedings of 12th International Offshore and Arctic Engineering Conference</i> , Glasgow, The American Society of Mechanical Engineers (ASME), (June 1993) 319-327
1993	(a) H. Zou and J.S. Kirkaldy "Carbonitride Precipitate Growth in Ti-Nb Microalloyed Steels" Metallurgical and Materials Transactions A, 22A (1991) 1511-1524
	(b) H. Zou and J.S. Kirkaldy "Thermodynamic Calculation and Experimental Verification of the Carbonitride-Austenite Equilibrium in Ti-Nb Microalloyed Steels" Metallurgical and Materials Transactions A, 23A (1992) 651-657

1992	E. Valdes and C.M. Sellars "Influence of Roughing Rolling Passes on Kinetics of Strain Induced Precipitation of Nb (C,N)" Materials Science & Technology, 7 (1991) 622-630
1991	R. Stephens, D.W. Petrasek and R.H. Titran "Refractory Metal Alloys and Composites for Space Power Systems" International Journal of Refractory Metals and Hard Materials, 9 (2) (1990) 96-103
1990	W. Bleck, W. Muschenborn and L. Meyer "Recrystallisation and Mechanical Properties of Microalloyed Cold-Rolled Steel" Steel Research, 59 (8) (1998) 344-351
1989	S. Akiyama, S. Kiya, K. Goshokubo, K. Yokoyama, K. Hirahara and H. Hoshi "Development of an Improved Corrosion Resistant Ferritic Stainless Steel NAR-FC-3" Nippon Stainless Technical Report, 21 (1986) 31-47
1988	P. Charlier and L. Becker "Optimizing the Composition of a Microalloyed Steel with 0.45% C to Obtain a Tensile Strength of 1000 MPa without Heat Treatment" <i>Proceedings of the 7th International Conference on the Strength of Metals and Alloys</i> , Montreal, Canada, (12–16 August 1985)
1987	(a) J.B. Lambert, P.F. Ziegler and J.J. Rausch "Tribocar 532N - A New Material for Environments Involving Wear and Corrosion" <i>Proceedings of 11th International Plansee Seminar</i> , 1 Reutte Austria, (May 1985), 181-200 (b) P.F. Ziegler and J.J. Rausch "Tribocar 532N - A New Material for Environments Involving Wear and Corrosion" Journal of Materials for Energy Systems, 8 (1) (1986) 49-57
1986	(a) R. Riedl, S. Karagoz, H. Fischmeister and F. Jeglitsch "New Developments in the Field of High-Speed Tool Steels" Huttenmann Montash, 129 (3) (1984) 71-85 (b) S. Karagoz, R. Riedl, M.R. Gregg and H. Fischmeister "The Role of MC Carbides in High Speed Tool Steels" Progress in Metallography, Riederer-Verlag (Stuttgart), (1984) 369-382
1985	(a) R.K. Amin and F.B. Pickering "Austenite Grain Coarsening and the Effect of Thermomechanical Processing on Austenite Recrystallization" <i>Proceedings of Thermomechanical Processing of Microalloyed Austenite Conference</i> , USA, Metallurgical Society of The American Institute of Mining, Metallurgical, and Petroleum Engineers, (1982) 1-30 (b) R.K. Amin and F.B. Pickering "Ferrite Formation from Thermo-Mechanically Processed Austenite" <i>Proceedings of Thermomechanical Processing of Microalloyed Austenite Conference</i> , USA, Metallurgical Society of The American Institute of Mining, Metallurgical, and Petroleum Engineers, (1982), 337-402

1984	T. Irie, S. Satoh, A. Yasuda and O. Hashimoto “Development of Deep Drawable and Bake Hardenable High Strength Steels by Continuous Annealing of Extra Low Carbon Steels with Nb or Ti and P” <i>Proceedings of Metallurgy of Continuous Annealed Sheet Steel Conference</i> , Dallas, Texas, USA, Metallurgical Society of The American Institute of Mining, Metallurgical, and Petroleum Engineers, (1982) 155-171
1983	K.K. Schulze “Preparation and Characterization of Ultra-High Purity Niobium” Journal of Medical Engineering & Technology (JMET), 33 (4) (1988) 33-41
1982	M.G. Akben, I. Weiss and J.J. Jonas “Dynamic Precipitation and Solute Hardening in a V Microalloyed Steel and Two Nb Steels Containing High Levels of Mn” Acta Metallurgica, 29 (1981) 111-121
1981	C. Ouchi, J. Tanaka, I. Kozasu and K. Tsukada “Control of Microstructure by the Processing Parameters and Chemistry in the Arctic Line Pipe Steels” <i>Proceedings of Micon 78: Optimization of Processing, Properties and Service Performance through Microstructural Control</i> , American Society for Testing and Materials Selected Technical Papers, 672 (1979) 105-125
1980	B. Serin, Y Desalos, P. Maitrepierre and J. Rofes-Vernis “Transformation Characteristics and Properties of Low-Carbon Nb-B Steels” Memoires et Etudes Scientifiques de la Revue de Metallurgie., 75 (1978) 369
1979	G.R. Speich and D.S. Dabkowski “Effect of Deformation in the Austenite and Austenite-Ferrite Regions on the Strength and Fracture Behavior of C, C-Mn-Cb and C-Mn-Mo-Cb Steels” <i>Proceedings of The Hot Deformation of Austenite Conference</i> , American Institute of Metallurgical Engineers, (1979) 557-597