研究ステーション研究成果報告書

１．研究ステーション名　環境調和型ライフサイクル研究ステーション
　　代表者名　由良　憲二

２．設置期間
　　平成２０年　４月　９日　～　平成２５年　４月　８日

３．研究成果

一層の高品質、高技術を追求しつつ、環境への配慮が十分なされたモノづくりシステムとして、ライフサイクル設計と循環型生産物流システムに着目し、情報を活用した環境調和型の製品ライフサイクルシステムに関する研究を行ってきた。製品の生産、物流、消費、廃棄／リサイクルといった製品ライフサイクルプロセスで、製造企業、物流業者、消費者、リサイクル事業者間の情報の共有化とコミュニケーションに基づくコラボレーションを図ることで、環境調和を実現するとの観点である。この考え方に基づいて、製品設計、生産・物流システム、クローズド・ロジスティックス、ゼロエミッション、循環型・低炭素型生産システム、企業間取引、環境配慮型ライフスタイルと幅広い分野で研究が進められ、項目６に記載されているように多くの業績が挙げられた。

４．研究成果の公表実績（主催した研究会、研究成果の発信状況等）

研究ステーションが主催して、平成 20 年度 1 回、平成 22 年度 1 回、平成 23 年度 1 回、平成 24 年度 3 回の講演会を主催した。6 回の内で 3 回は海外の研究者発表を含む英語による講演会である。研究成果は、項目６に主たる業績を挙げるが、数多くの研究成果が書籍、学術雑誌、国際会議などで発表されている。

５．外部資金の獲得状況

研究ステーションのメンバーが研究代表者として期間中に獲得した外部資金は以下の通りである。

○平成 23～26 年度，若手研究（B),「製品再生ライフサイクル志向の循環型生産・物流システムのモデル化と評価」（研究代表者 山田哲男）

○ 平成 24～25 年度，挑戦的萌芽研究 研究代表者 「安全性から見たネットワークフローモデルの開発とその応用」（研究代表者　田中健一）

○平成 23～25 年度，基盤研究（C),「力覚による援用を利用した工作機械操作インタフェイスの開発」（研究代表者 森重功一）

○平成 22～24 年度，基盤研究（C),「地方広域都市圏における密度指標としての公共的緑地の配置計画の評価」（研究代表者　山本佳代子）

○平成 22～23 年度，若手研究（B),「時空間領域における最適化手法の開発と都市・地域分析への応用」(研究代表者　田中健一)

○平成 21～23 年度，若手研究（B),「エージェント概念を導入した CAD,CAE,知識に基づく異部門間「すりあわせ」支援」(研究代表者　井上全人)

○平成 21～22 年度，若手研究（B),「力覚呈示装置を利用した多軸制御工作機械操作インターフェイスの開発」(研究代表者 森重功一)

○平成 20～22 年度，若手研究（B),「異なる製品再生ライフサイクルを考慮した循環型生産システムのモデル化と設計」(研究代表者 山田哲男)

○ 平成 20～22 年度，基盤研究（C),「初期設計段階での不確定性を考慮した有限要素法の開発」(研究代表者　石川晴雄)

６．代表的なピアレビュー論文発表、学会プレナリ、招待講演発表、特許出願、受賞等

[著書]
○石川晴雄(編著)，中山良一，井上全人，現代設計工学，コロナ社，2012.
○梶秀樹，和泉潤，山本佳世子(編著書)：東日本大震災 復旧・復興への提言，技報堂出版，2012.
○石川晴雄，多目的最適化－セットベース設計手法による多目的満足化，コロナ社，2010.
○大場允晶，藤川裕晃（編著），山田哲男（分担執筆　第 11 章 環境問題と生産管理 1・2・3 節），生産マネジメント概論 戦略編，文眞堂，2010.

[著書：分担執筆]
○髙桑宗右エ門(編著)，山田哲男(分担執筆　5.2 節持続可能なモノづくりに向けた循環型・低炭素型サプライチェーンの設計)，モノづくりと環境のマネジメント，2013 年 3 月，中央経済社.
○Soemon Takakuwa, Nruyen Hong Son, Nguyen Dang Minh (Eds.), Tetsuo Yamada, (Part 6, 6.2, “Design of Closed-loop and Low-carbon Supply Chains for Sustainability”), *Manufacturing and Environmental Management*, National Political Publishing House, 2012.
○Tetsuo Yamada and Kazuki Sunanaga, (Part 6, 6.5, “Information Sharing and Utilization for Environmental Loads in Disassembly System Design with PLM”), *Sustainable Manufacturing – Shaping Global value Creation*, Springer, 2012.

[学術雑誌]
○Hiroki Satou and Kayoko Yamamoto, An Evaluation of Carbon Dioxide Emissions Trading among Enterprises -The Tokyo Cap and Trade Program-, *Journal of Communication and Computer*, Vol.9, No.9, pp.1008-1020, 2012.
○張世峰，山本佳世子，和泉潤，食品製造業におけるゼロエミッション活動の評価，環境科学会誌，Vol.26，No.2，pp.1-17, 2013.
○ Yoon-Eui Nahm, Haruo Ishikawa and Masato Inoue, New Rating Methods for Prioritizing Customer Requirements in QFD with Incomplete Customer Preferences, *International Journal of Advanced Manufacturing Technology*, Vol. 65, Issue 9-12, pp. 1587-1604, 2013.
○Masato Inoue, Kai Lindow, Rainer Stark, Kenji Tanaka, Yoon-Eui Nahm and Haruo Ishikawa, Decision-Making Support for Sustainable Product Creation, *Advanced Engineering Informatics*, Vol.26, Issue 4, pp.782-792, 2012.
○ Tomoyuki Kanda and Koichi Morishige, Tool Path Generation for Five-Axis Controlled Machining with Consideration of Structure Interference, *International Journal of Automation Technology*, Vol.6, No.6, pp.710-716, 2012.
○岸亮介，井上全人，石川晴雄，戸部邦治，樋口和宏，山根正敬， セットベース設計手法による触媒マフラの最適構造設計， 自動車技術会論文集，Vol.43，No.2, pp.363-368, 2012.

○Kenji Tanaka, Hiromichi Akimoto and Masato Inoue, Production Risk Management System with Demand Probability Distribution, *Advanced Engineering Informatics*, Vol.26, Issue 1, pp.46-54, 2012.
○張世峰，山本佳世子，和泉潤：調味料製造業のゼロエミッション活動の特性，環境技術，Vol.41, No.2, pp.97-103, 2012.
○Hiroyuki Ogawa, Tadayuki Masui, and Tetsuo Yamada, Development of a Decision Support System for Selecting Transportation Mode Considering CO2 Emissions, *Journal of Japan Industrial Management Association*, 62/3E, pp.117-124, 2011.
○張世峰，山本佳世子，和泉潤：精穀・製粉業におけるゼロエミッション活動の特性に関する研究，環境技術, Vol.40, No.6, pp.357-364, 2011.
○山本佳世子，地域協働による一般廃棄物削減方策に関する研究－東京都調布市を事例として－，環境科学会誌, Vol.24, No.4, pp.372-383, 2011.
○Noriyoshi Hosoya and Kayoko Yamamoto, Web-GIS based Outdoor Education Program as Environmental Education for Elementary Schools, *Journal of Scio-Informatics*, Vol.4, No.1, pp.49-62, 2011.
○Koichi Morishige and Makoto Kaneko: Tool Path Generation for Five-Axis Controlled Machining with Consideration of Motion of Two Rotational Axes, *International Journal of Automation Technology*, Vol.5, No.3, pp.412-419, 2011.
○Masato Inoue, Yoon-Eui Nahm, Soshi Okawa and Haruo Ishikawa: Design Support System by Combination of 3D-CAD and CAE with Preference Set-Based Design Method, *Concurrent Engineering: Research and Applications*, Vol.18, No.1, pp.41-53, 2010.
○Takuya Masuda and Koichi Morishige: The Tool Path Generation by Using Configuration Space for Five-Axis Controlled Machining － Application to Rough Cutting by Using Square End Mill, *Key Engineering Materials*, Vols.447-448, pp.292-296, 2010.
○M. Inoue, Y-E Nahm, S. Okawa and H. Ishikawa, Design Support System by Combination of 3D-CAD and CAE with Preference Set-Based Design Method, *Concurrent Engineering: Research and Applications*, Vol. 18, No. 1, pp. 41-53, 2010.
○井上，花ヶ崎，塩崎，石川，セットベース設計手法による多孔質積層材の吸音/遮音性能予測，自動車技術会論文集，Vol. 40，No. 3，pp. 699-704，2009.
○井上，磯江，石川，ネットワーク分散環境下における異種 3D-CAD の相互運用性と異部門間の協調設計支援，日本機械学会論文集(C 編)，Vol. 75，No. 752，pp. 1179-1186，2009.
○M. Kakehi, T. Yamada, and I. Watanabe, PLM Education in Production Design and Engineering by e-Learning, *International Journal of Production Economics*, Vol.122, Issue 1, pp.479-484, 2009.
○T. Yamada, N. Mizuhara, H. Yamamoto, and M. Matsui, A Performance Evaluation of Disassembly Systems with Reverse Blocking, *Computers and Industrial Engineering*, Vol.56, Issue 3, pp. 1113-1125, 2009.
○M. Inoue, Y. Takashima, and H. Ishikawa, Evaluation of Environmental Loads Based on 3D-CAD, *Collaborative Product and Service Life Management for a Sustainable World*, Springer, 585-562, 2008.
○石川，井上，大給，他，初期設計段階におけるセットベース多目的最適化（第 4 報：3D-CAD，CAE との連携によるフロントサイドメンバへの適用），自動車技術会論文集，Vol.39，No.6，2008.
○手塚，石井，電力スポット価格形成モデルを用いた PJM 市場の分析，社会経済研究, No.56, pp.25-35, 2008.
○石井，手塚，非協力ゲームの枠組みを用いた電力取引市場における市場支配力の分析,公益事業研究, Vol.59, No.3, pp.33-41, 2008.
○K. Tanaka，Optimal Location and Opening Hours of a Single Facility Which Maximally Cover Flows in a Circular City, FORMA, Vol.23, pp.43-50, 2008.
○O. Kurita and K. Tanaka，Optimal Location of the Terminal Station of Rapid Transit System in a Circular City with Radial-Circular Network, *FORMA*, Vol. 23, 35-41, 2008.
○田中，道路距離と直線距離の差の分布を用いた交通網分析と格子状都市への適用，都市計画論文集, No.43, pp.91-96, 2008.

[単行本掲載論文]
○Masato Inoue, Yoon-Eui Nahm, Kenji Tanaka and Haruo Ishikawa, Decision-Making Support for Selection of Design Ideas at the Early Phase of Structural Design, *Concurrent Engineering Approaches for Sustainable Product Development in a Multi-Disciplinary Environment*, Springer London, Edited by Josip Stjepandic, Georg Rock, Cees Bil, Volume 1, pp.521-532, 2013.

○Kai Lindow, Robert Woll, Masato Inoue, Haruo Ishikawa and Rainer Stark, Approaches for Sustainability Assessment in the Conceptual Design Phase, *Sustainable Product Development*, Springer-Verlag London, Edited by Amaresh Chakrabarti, Chapter 36, pp.377-387, 2012.
○Masato Inoue, Kai Lindow, Rainer Stark and Haruo Ishikawa: Preference Set-Based Design Method for Sustainable Product Creation, *New World Situation: New Directions in Concurrent Engineering*, Springer London, pp.387-394, 2010.

[国際会議論文]
○Masato Inoue, Yoon-Eui Nahm, Kenji Tanaka, and Haruo Ishikawa, Decision-Making Support for Selection of Design Ideas at the Early Phase of Structural Design, *Concurrent Engineering Approaches for Sustainable Product Development in a Multi-Disciplinary Environment* (*Proceedings of the 19th ISPE International Conference on Concurrent Engineering*), pp.521-528, 2013.
○K. Tanaka, H. Kobayashi, and K. Yura: A multiobjective model for locating drop-off points for collecting used products, *Proceedings of the 13th Asia Pacific Industrial Engineering & Management Systems Conference* (*APIEMS2012*), pp. 1620-1626, Thailand, December, 2012.
○Kento Igarashi, Tetsuo Yamada and Masato Inoue, Optimal Design of Disassembly System with Environmental and Economic Parts Selection using Recyclability Evaluation Method, *Proceedings of the 13th Asia Pacific Industrial Engineering and Management Systems Conference* (*APIEMS2012*), pp.589-599, Thailand, December, 2012, *The Best Student Paper Award*.
○Kayoko Yamamoto, Information Infrastructure for Recovery and Reconstruction after the Great East Japan Earthquake, *Japan-UK Joint Workshop on Policy Integration between Environmental Assessment and Disaster Management*, 2012.
○Masahiro Ishii and Koichiro Tezuka, Strategic Behavior and Mark-Ups in an Electricity Market, *2012 3rd IAEE(International Association of Energy Economics) Asian Conference*, 2012.
○Tetsuo Yamada, Yusuke Suzuki, Tadayuki Masui, Norihiro Itsubo and Masato Inoue, Disassembly System Design with Environmental and Economic Parts Selection using Life Cycle Inventory Database by Input-Output Tables, *10th Global Conference on Sustainable Manufacturing* (*GCSM2012*), pp.321-326, Turkey, October 2012.
○Stefan Bracke, Jens Michalski, Masato Inoue and Tetsuo Yamada, CDMF-RELSUS concept: Reliable Products are Sustainable Products - Influences on Product Design Manufacturing and Use Phase, *10th Global Conference on Sustainable Manufacturing* (*GCSM2012*), pp.220-224, Turkey, October 2012, *Keynote*.
○Tetsuo Yamada, Design of Closed-Loop and Low-Carbon Supply Chains - A Perspective from Sustainable Manufacturing, *International Conference, JSPS Asian Core program: Sustainable Manufacturing and Environmental Management*, Vietnam, October 2012, *Invited Lecture*.
○Tetsuo Yamada, Rizka Aisha Rahmi Hariadi and Yuji Matsuda, Queueing Modeling of Material Sorting Disassembly System, *Proceedings of The International Workshop on Modern Science and Technology 2012 (IWMST 2012)*, Japan, pp.255-260, August 2012.
○ Kento Igarashi, Tetsuo Yamada and Masato Inoue, Disassembly System Design with Environmental and Economic Parts Selection using Recyclability Evaluation Method, *Proceedings of the International Symposium on Reliability Engineering and Risk Management* (*ISRERM2012*), Japan, pp.177-182, August 2012.
○ Tetsuo Yamada, Yusuke Kume and Hisashi Yamamoto, Queueing Analysis of Disassembly Systems with Reverse Blocking in Consideration of Sorting Traffic and Buffer Capacities, *Proceedings of the IIE Asian Conference 2012*, e-Proceedings, June 2012.
○Kayoko Yamamoto, Using Information Systems for Recovery and Reconstruction after the Great East Japan Earthquake, *JOINT CONFERENCE PROCEEDINGS: 9th International Conference on Urban Earthquake Engineering/4th Asia Conference on Earthquake Engineering*, pp.1841-1847, 2012.
○Masahiro Ishii and Koichiro Tezuka, Strategic Behavior and Mark-Ups in an Electricity Market, *2012 3rd IAEE(International Association of Energy Economics) Asian Conference*, 2012.
○Kai Lindow, Robert Woll, Masato Inoue, Haruo Ishikawa and Rainer Stark, Approaches for Sustainability Assessment in the Conceptual Design Phase, *22nd CIRP Design Conference*, 2012.

○Tetsu Murakami, Masato Inoue, Yoon-Eui Nahm and Haruo Ishikawa, An Upgrade Design Method for Environmental Issues Based on the Concept of Set-Based Design, *Proceedings of EcoDesign 2011 International Symposium*, pp.500-505, 2011.
○Tetsuo Yamada, An Overview and Challenges in Designing Supply Chains for Sustainability, *International Symposium on Environmental Accounting and LCA for Greening the Supply Chain in Asia*, p.10, 2011.
○Tetsuo Yamada and Kazuki Sunanaga, Information Sharing and Utilization for Environmental Loads in Disassembly System with PLM, *Proceedings: 9th Global Conference on Sustainable Manufacturing, Sustainable Product Development and Life Cycle Engineering*, pp.264-269, 2011.
○Yuto Okudera, Tetsuo Yamada, Tadayuki Masui, and Norihiro Itsubo, Sorting Process Location Problem in Disassembly System Configuration, *21th International Conference on Production Research (ICPR 21)*, 2011.
○Tetsuo Yamada, Jun Kameda, and Kento Igarashi, Model and Design of Recycling Disassembly Systems with Material Recovery Values, *International Conference on Remanufacturing (ICoR 2011)*, pp.211-217, 2011.
○Koichiro Tezuka and Masahiro Ishii, An Application of Non-cooperative Game to an Equilibrium Freight Rate with Capacity Constraint Under Uncertainty, *IAME(International Association of Maritime Economics)*, 2011.
○Shuhei Kobori and Koichi Morishige, Development of Operation Interface for Machine Tool using 6-DOF Haptic Device - Guidance of Tool Movement Using Force Sense, *Proceedings of 4th International Conference of Asian Society for Precision Engineering and Nanotechnology (ASPEN2011)*, 2011.
○ Tomoyuki Kanda and Koichi Morishige, Tool Path Generation for Five-Axis Controlled Machining with Consideration of Structure Interference, *Proceedings of the 6th International Conference on Leading Edge Manufacturing in 21st Century (LEM21)*, CD-ROM, 3379, 2011.
○Masato Inoue, Yutaka Hattori and Haruo Ishikawa: Set-Based Design Method for the Early Phase Design of Structures with Uncertainties, *2010 ASME International Mechanical Engineering Congress & Exposition*, Published by DVD (No. IMECE2010-40984), 2010.
○Masato Inoue, Kai Lindow, Rainer Stark and Haruo Ishikawa: Application of Sustainable Aspects to the Set-Based Design Method, *Design Conference 2010*, Published by CD-ROM, 2010.
○Masato Inoue: Product Design Method for the Early Phase of Design, *Seoul National University, Department of Naval Architecture and Ocean Engineering*, 2010.
○Tetsuo Yamada and Naomi Ohta: Modeling and Design for Reuse Inverse Manufacturing Systems with Product Recovery Values, *The 8th Global Conference on Sustainable Manufacturing, Sustainable Product Development and Life Cycle Engineering*, Abu Dhabi, UAE, 2010
○ Koichi Morishige and Yu Yamagishi: Development of Operation Interface for Multi-Axis Controlled Machine Tools Using Haptic Device with 6-DOF Force Feedback, *Proceedings of 2010 International Symposium on Flexible Automation (ISFA2010)*, CD-ROM, JPS-2523 (Tokyo, Japan, July,12-14, 2010).
○Koichi Morishige and Makoto Kaneko: Tool Path Generation for Five-Axis Controlled Machining with Consideration of Motion of Two Rotational Axes, *Proceedings of 4th CIRP International Conference on High Performance Cutting (HPC2010)*, VOL.2, pp.153-158 (Gifu, Japan, 24-26 October, 2010).
○T. Yamada, H. Yamamoto, J. Mitsuhashi, and I. Wakiyama, A Modeling of Disassembly Systems with Reverse Blocking Considering Traffic and Buffer Capacities in Sorting Process, *Northeast Decision Sciences Institute, 2010 Annual Conference*, Alexandria, USA, March, CDROM, pp.433-438, 2010.
○T. Yamada, M. Inoue, H. Ishikawa, and K. Yura, A Collaborative Disassembly Evaluation between Product and System Design with PLM, *Proceedings of the 7th Global Conference on Sustainable Manufacturing, Sustainable Product Development and Life Cycle Engineering*, Chennai, India, Dec, CDROM, pp.301-306, 2009.
○T. Yamada, Disassembly System Designs for Different Product Recovery Lifecycle: Japanese Cases and Its Research Challenges, *Proceedings of the 8th Symposium of the Institute of Business Research*, Tokyo, Japan, Invited Lecture, Nov, pp.43-54, 2009

○T. Yamada, M. Goto, T. Masui, and T. Yoshifuji, Estimation and Assignment Methods of CO2 Emissions, *The 2nd International Workshop on Institutional Supply Chain Management (ISCM2009)*, Invited Sesstion, Xi'an, China, Aug, CDROM, pp.489-498, 2009.
○T. Yamada and M. Arakawa, Disassembly System Design Considering Product Recovery Values, *20th International Conference on Production Research (ICPR-20)*, Shanghai, China, Aug, CDROM, p.126, 2009.
○T. Yamada, M. Goto, T. Masui, and T. Yoshifuji, Real Time Assignment of CO2 Emissions in Transportation Process - A Process Improvement by Information System with RFID-, *14th International Symposium on Logistics (14th ISL*), Istanbul, Turkey, July, CDROM, pp.482-486, 2009.
○K. Yura, K. Tanaka, and H. Kobayashi, A Location Problem of Reverse Logistics Facilities in PLM, *Proceedings of the 8th Symposium of the Institute of Business Research: Problem Solving Systems*, pp.55-65, 2009.
○T. Yamada, Inverse Manufacturing Systems with Different Product Recovery Lifecycle: Japanese Cases and a Concept, *Proceedings of Global Conference on Sustainable Product Development and Life Cycle Engineering: Sustainability and Remanufacturing IV*, Key Note Speech, 19-22, 2008.
○S. Tamura and K. Yura, Logistics Systems for Products Refurbishment, *Proceedings of Global Conference on Sustainable Product Development and Life Cycle Engineering: Sustainability and Remanufacturing IV*, 98-104, 2008.
○M. Inoue and H. Ishikawa, Finite Element Method as a Method of Product Design with Uncertainties for Sustainable Industrial Growth, *Proceedings of Global Conference on Sustainable Product Development and Life Cycle Engineering: Sustainability and Remanufacturing IV*, 195-199, 2008.
○T. Ito and K. Morishige, Automation of Polishing Process by Industrial Robots with Judgment of Polished Surface Quality Based on Imaging Processing, *Proceedings of Asia International Symposium on Mechatronics 2008*, 483-487, 2008.
○K. Tezuka and M. Ishii, Strategic Behavior and the Determination of Spot Prices in Shipping Freight Markets: A Game Theoretical Approach, *Proceedings of IAME 2008 Conference*, on CD-ROM, 2008.
○M. Ishii and K. Tezuka, A Study on a Non-cooperative Game-theoretic Pricing Framework in a Oligopolistic Electricity Market, *Proceedings of 31th Annual IAEE International Conference*, 2008.
○M. Ishii and K. Tezuka, A Study on an Asset Valuation Framework for Electricity Markets, *Proceedings of 2nd IAEE Asian Conference*, 2008.
○M. Ishizaka, K. Tezuka and M. Ishii, The Effects of the Regulatory Reform on Market Risk in the Japanese Electricity Industry, *Proceedings of 2nd IAEE Asian Conference*, 2008.

[論説・解説論文]
○山本佳世子，東日本大震災の復興における自然環境資源を活用した持続可能な地域再生，計画行政，Vol.35，No.2，pp.17-20，2012.
○山田哲男，持続可能なモノづくりのための循環型・低炭素型サプライチェーンの統合へ向けて，経営システム，Vol.22，No.3，pp.135-140，2012.
○森重功一:エンドミル加工における干渉回避,精密工学会誌,第 77 巻，第 8 号，pp.742-745 2011.

[招待論文]
○國部克彦，伊坪徳宏，中嶌道靖，山田哲男，アジア地域を含む低炭素型サプライチェーンの構築と会計の役割，会計，Vol.182，No.1，pp.82-97，2012.
○由良憲二，環境指向型生産システムに関する一考察，日本情報経営学会誌，Vol.32，No.4，pp.11-16，2012.
○山田哲男，持続可能なモノづくりに向けた循環型・低炭素型サプライチェーンの設計と課題，日本情報経営学会誌，Vol.33，No.1，pp.94-100，2012.
○山田哲男：エコ生産システム～持続可能なモノづくり～，工場管理，Vol.57，No.1，pp.142-143，2011.
○森重功一:5 軸・複合加工機を使いこなすためのソフトウェア技術，機械と工具，第 54 巻，第 5 号，pp.16-20，2010.
○森重功一：コンフィギュレーション空間に基づいた 5 軸制御加工のための工具経路生成に関する研究，精密工学会誌，第 76 巻，第 8 号，pp.871-875，2010.

［招待講演］
○山田哲男：循環型・低炭素型のサプライ・チェーン設計と課題, 日本経営工学会, 循環型サプライ・チェーン研究部会シンポジウム, 2012.
○Tetsuo Yamada, Designs and Challenges in Closed-Loop and Low Carbon Supply Chains for Sustainability Manufacturing and Environmental Management under Low-carbon Economy (S-2), *Conducted under JSPS Asian CORE Program: Manufacturing and Environmental Management in East Asia*, 2012.
○井上全人，石川晴雄：日本型すりあわせ製品開発における設計ノウハウの継承支援方法, 第 3 回技術継承フォーラム「ものづくり技能継承の現状と展望」, 独立行政法人理化学研究所, 2011.
○T. Yamada: Homework for Next Generation in Industrial Sustainability - Research Challenges in Production and Logistics Systems for Sustainability, *UK-Japan Workshop on Industrial Sustainability*, The British Embassy Tokyo, 2011.
○山田哲男：環境に調和した生産・物流システムと企業経営, (社) 日本技術士会経営工学部会ビジネス研究会経営環境, 2010.