



氏 名 : 西田 克美(NISHIDA Katsumi)  
所属部署 : 電気工学科  
職 名 : 嘱託教授  
学 位 : 博士(工学)  
専門分野 : パワーエレクトロニクス  
クラブ顧問: サッカー部

#### 【研究テーマ】

1. デジタル信号処理のパワーエレクトロニクスへの応用
2. 再生可能エネルギー発電の鉛蓄電池を用いた出力時間シフト
3. 風力発電用電力変換回路

#### 【担当授業科目】

電気機器、電気法規、電気回路

#### 【校務分掌】

図書館長(H26-28)、学科長(H23-24)、担任(H20-22)

#### 【所属学会・協会等】

電気学会, IEEE, 電気設備学会

#### 【技術協力可能分野】

インバータ応用 再生可能エネルギー利用

#### 【業績・実績リスト】

##### 学術論文

- 1)K. Nishida, Tarek Ahmed and M. Nakaoka " A Novel Finite-Time Settling Control Algorithm Designed for Grid-connected Three-phase Inverter with and LCL-type Filter " IEEE Transactions on Industry Applications, Vol. 50, No. 3, May/June, 2014.
- 2) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoaka: "Cost-effective Deadbeat Current Control for Wind-Energy Inverter Application with LCL Filter", IEEE Transaction on Industry Applications, MARCH/APRIL.2014, Volume: 50, Issue: 2
- 3)Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka, "A Cost-Effective High-Efficiency Power Conditioner with Simple MPPT Control Algorithm for Wind Power Integration", IEEE Transactions on Industry Applications, Vol. 47, No.2, March/April, 2011
- 4)Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka, "Wind Power Grid Integration of an IPMSG using a Diode Rectifier and Simple MPPT Control for Grid-Side Inverters", Journal of Power Electronics, vol. 10, no. 5, pp. 548-554, 2010
- 5)Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "Advanced control for PWM converter and variable-speed induction generator", IET Electric Power Applications, Volume 1, Issue 2, pp. 239-247 (2007)
- 6) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "A Novel Stand-Alone Induction Generator System for AC and DC Power Applications ", IEEE Transactions on Industry Applications, Vol. 43, No.6, pp.1465~1474 (2007)
- 7)Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "Advanced Control of PWM Converter with Variable-Speed Induction Generator ", IEEE Transactions on Industry Applications, Vol. 42, No.4, pp.934~945 (2006)

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- 9) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka: "A Novel Induction Generator System Using Bi-directional PWM Converter for Small-Scale Power Applications", 電気学会英字論文誌, Vol. 1, No.1, pp80~94 (2006)
- 10) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka: "Induction generator hybrid applications with active power filter", IEE-UK Transactions on Electric Power Applications, Vol. 153, No.2, pp.197~205 (2006)
- 11) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "Induction Generator Using PWM Converter and Its Small-Scale Power Applications to Variable-Speed Renewable-Energy Generation", Journal of Power Electronics, Vol.5, No.4, pp.289~304 (2005)
- 12) Katsumi Nishida, M. Rukonuzzaman, Mutsuo Nakaoka: "Digital Control Three-Phase Shunt Active Power Filter with New Harmonic Current Extraction Process", IEE-UK Transactions on generation, transmission and distribution, Vol.152, No.4, pp.529~538 (2005)
- 13) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "Static VAR compensator-based voltage control implementation of single-phase self-excited induction generator", IEE-UK Transactions on generation, transmission and distribution, Vol. 152, No.2, pp.145~156 (2005)
- 14) Katsumi Nishida, M. Rukonuzzaman, Mutsuo Nakaoka: "A Novel Single-Phase Shunt Active Power Filter with Adaptive Neural Network Based Harmonic Detection", 電気学会論文誌D分冊(産業応用部門), Vol.125, No.1, pp9~15(2005)
- 15) 西田克美, エムディー ルコヌツザマン, 中岡睦雄: "適応型デジタルフィルタを用いたアクティブパワーフィルタ出力電流のロバスト有限時間整定制御法", 電子情報通信学会論文誌B分冊, Vol. J87-B, No12, pp2082~2089 (2004)
- 16) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "Self-Excited Induction Generator with Simple Voltage Regulation Suitable for Wind Energy", Journal of Power Electronics, Vol.4, No.4, pp.205~216 (2004)
- 17) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "AC and DC Applications of Induction Generator Excited by Static Var Compensator", Journal of Power Electronics, Vol.4, No.3, pp.169~179 (2004)
- 18) 西田克美, M. Rukonuzzaman, Tarek Ahmed, 中岡睦雄: "適応形ニューラルネットワークを使用したシャントアクティブパワーフィルタの高調波電流検出", 電気設備学会誌, 第24巻, 第6号, pp.445~451 (2004)
- 19) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "Static VAR Compensator-based Feedback Control Implementation for Self-Excited Induction Generator Terminal Voltage Regulation Driven by Variable-Speed Prime Mover", Journal of Power Electronics, Vol.4, No.2, pp.65~76 (2004)
- 20) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka: "Robust Deadbeat Current Control Method for Three-Phase Voltage-Source Active Power Filter", Journal of Power Electronics, Vol.4, No.2, pp.102~111 (2004)
- 21) Katsumi Nishida, M. Rukonuzzaman, Mutsuo Nakaoka: "Advanced Current Control Implementation with Robust Deadbeat Algorithm For Shunt Single-Phase Voltage-Source Type Active Power Filter", IEE-UK Transactions on Electric Power Applications, Vol. 151, Issue03, pp.283~288 (2004)
- 22) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "Effective Algorithm in Steady-State Analysis for Variable-Speed and Constant-Speed Wind Turbine Coupled Three-Phase Self-Excited Induction Generator", KIEE International Transaction on Electrical Machinery Energy Conversion Systems, No.3, pp.137~146 (2003)
- 23) 西田克美, 小西義弘, 中岡睦雄: "適応線スペクトル強調器を使用した三相電流形アクティブパワーフィルタのロバスト電流制御法", 電気学会論文誌(産業応用部門)D分冊, 第123巻, 第9号, pp.985~994 (2003)
- 24) 西田克美, 中岡睦雄: "改良形移動平均デジタルフィルタを用いた瞬時高調波補償電流検出遅れ低減法", 電気学会論文誌(産業応用部門)D分冊, 第122巻, 第8号, pp.879~880 (2002)
- 25) Katsumi Nishida, Yoshihiro Konishi, Mutsuo Nakaoka: "Current Control Implementation with Deadbeat Algorithm for Three-Phase Current-Source Active Power Filter", IEE-UK Transactions on Electric Power Applications, Vol. 149, Issue04, pp.275~282 (2002)
- 26) 西田克美, 小西義弘, 中岡睦雄: "三相電流形PWMコンバータの $\alpha/\beta$ 静止座標系における有限時間整定制御", 電気学会論文誌(産業応用部門)D分冊, 第122巻, 第4号, pp.396~402 (2002)

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27) 西田克美, 小西義弘, 中岡睦雄 : “三相電流形PWMコンバータ制御モデルとその有限整定制御”, 電気学会論文誌(産業応用部門)D分冊, 第121巻, 第1号, pp.143~144 (2001)

## 著書

1) 西田克美: “インバータ制御回路と実践”, 科学情報出版, 2016年11月初版

## 国際会議発表

1) State-Vector Feedback Gain Analysis for Deadbeat Control of Grid-Integrated Inverter with LCL filter., “Tarek Ahmed, Katsumi Nishida, Ikuo Nanno”, Proceedings of the IEEE European Power Electronics Conference (EPE2016), September, 2016, (Karlsruhe, Germany)

1) Low-Cost Power Regulation Scheme for Grid-Connected Variable-speed Wind Turbine Using TPPL Lead-acid Batteries, “Tarek Ahmed, Katsumi Nishida, Ikuo Nanno, Mutsuo Nakaoka”, Proceedings of the IEEE Energy Conversion Congress and Exposition (ECCE2015), pp.4202~4207, September, 2015, (Montreal, Canada)

2) Interleaved DC-DC Converter with Lead-acid Storage Batteries for Power Regulation of Grid-connected Variable-speed Wind Turbine, “Tarek Ahmed, Katsumi Nishida, Saad Mekhilef, Mutsuo Nakaoka”, Proceedings of the 11th International Conference on Power Electronics and Drive Systems (PEDS 2015), pp.786~790, June, 2015, (Sydney, Australia)

3) Katsumi Nishida, Tarek Ahmed, Saad Mekhilef, Mutsuo Nakaoka.: “Cost-effective High-reliability Power-Conditioning System used for Grid Integration of Variable-speed Wind Turbine” IEEE IFECC 2013, Tainan, November, 2013

4) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka.: “A New Scheme of Full-power Converter used for Grid Integration of Variable-speed Wind Turbines”, IEEE ECCE 2013, Denver September, (2013)

5) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka.: “Deadbeat Current Control for Wind-Energy Inverter Application with LCL Filter”, IEEE PEDS 2013, Kita-kyusyu, April (2013)

6) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka, “Cost-effective Deadbeat Current Control for Wind-Energy Inverter Application with LCL Filter”, Proceedings of IEEE Energy Conversion Congress and Exposition (ECCE2012), pp.565~572, Raleigh (USA), September (2012)

7) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka, “Deadbeat Current Control of LCL-Filter for Grid Connected Three-Phase Voltage Source Inverter”, Proceedings of the 8th International Conference on Power Electronics and Drive Systems (IEEE PEDS 2011), Singapore, December (2011), pp.459~467

8) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka, “Finite-Time Current Control of LCL-Filter for Grid-Connected Three-Phase Voltage-Source Inverter”, Proc. of IEEE Energy Conversion Congress and Exposition (ECCE2011), Phoenix(Arizona, United States), September (2011), pp.1019~1025

9) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka, “The Commercial Advancement of 16 MW Offshore Wave Power Generation Technologies in the Southwest of the UK”, Proc. of IEEE 8th International Conference on Power Electronics (ECCE ASIA), Jeju(Jeju, Korea) June (2011), pp.1476~1483

10) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka, “Development of Grid-connected Wind Energy System Employing Interior PM Synchronous Generator and Multi-pulse Rectifier”, Proceedings of IEEE Energy Conversion Congress and Exposition (ECCE2010), pp.3374~3381, Atlanta(Georgia, United States), September(2010)

11) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka, “Grid Power Integration Technologies for Offshore Ocean Wave Energy”, Proceedings of IEEE Energy Conversion Congress and Exposition (ECCE2010), pp.2378~2385, Atlanta(Georgia, United States), September(2010)

12) Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka, “The Potential for Grid Power Integration of Offshore Ocean Wave Energy in the UK”, Proceedings of the IEEE 2010 International Power Electronics Conference

13) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka, “A Cost-Effective High-Efficiency Power Conditioner with Simple MPPT Control Algorithm for Wind Power Grid Integration”, IEEE The Eighth Conference on Power Electronics and Drive Systems (PEDS 2009), Proceedings CD-ROM, Taipei (Taiwan), Nov. 2-5 (2009),

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- 14) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka: " A Novel Current Control System Using PLL Circuit for Interior Permanent Magnet Synchronous Generator", 39th IEEE Power Electronics Specialists Conference (PESC 2008), pp.1508–1514, Rhodes(Greece), June 15–19, (2008)
- 15) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka: " A Novel Interior Permanent Magnet Synchronous Generator System Using PWM Converter with PLL circuit ", 4th IET Int'l Conf on Power Electronics, Machines and Drives (PEMD2008), pp320– 324, York (UK), April 02–04, (2008)
- 16)Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka: " A Sensorless Voltage Control of Stand-Alone Induction Generator with PWM Converter for Renewable Energy Applications ", 37th IEEE Power Electronics Specialists Conference (PESC 2006), pp.110–116, Jeju (Korea), June 18–22, (2006)
- 17)Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: " A Novel Stand-Alone Induction Generator System for AC and DC Power Applications ", 2005 IEEE Industry Applications Conference 40th IAS Annual Meeting, CD-ROM, (Hong Kong) October (2005)
- 18) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka: " Deadbeat Current Control for AC and DC Power Applications of a Stand- Alone Induction Generator System", International Conference on Power Electronics and Drive Systems (PEDS 2005), pp480– 485, Kuala Lumpur (Malaysia), 28 Nov–1 Dec (2005)
- 19)Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "A Novel Induction Generator System for Small-Scale AC and DC Power Applications ", 36th IEEE Power Electronics Specialists Conference (PESC 2005), pp.250–256, Recife (Brazil), June 12–16, (2005)
- 20) Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka: " Robust Deadbeat Current Control with Adaptive Predictor for Three-Phase Voltage-Source Active Power Filter", 2004 IEEE Industry Applications Conference 39th IAS Annual Meeting, CD-ROM, Seattle (USA), October (2004)
- 21)Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: " Static VAR Compensator-Based Voltage Regulation Implementation of Single-Phase Self-Excited Induction Generator", Proceedings of the 39th IEEE Industry Applications Society Annual meeting (IAS), pp.2069~2076, Seattle (USA), October (2004)
- 22)Tarek Ahmed, Katsumi Nishida, Mutsuo Nakaoka: "Wind Energy DC Supply-Based Induction Generator with Static VAR Compensator and AC Voltage Regulator", Proceedings of the 26th Telecommunication Energy Conference 2004 (INTELEC 2004), pp.689~696, Chicago (USA), September (2004)
- 23)Katsumi Nishida, M. Rukonuzzaman, Tarek Ahmed, Mutsuo Nakaoka: "A Robust Deadbeat Current Control Method By Using Adaptive Line Enhancer for Single-Phase Voltage Source Active Power Filter", Proceedings of the 4th International Power Electronics and Motion Control Conference of IEEE Power Electronics Society (IPEMC), pp.221~226, Xi' an (China), August (2004)
- 24)Tarek Ahmed, Katsumi Nishida, Hyun-Woo Lee, Mutsuo Nakaoka: "SVC and AC Load Voltage Regulation Scheme for IDC Outputted Three-Phase Induction Generator", Proceedings of the 4th International Power Electronics and Motion Control Conference of IEEE Power Electronics Society (IPEMC), pp.1189~1194, Xi' an (China), August (2004)
- 25)Katsumi Nishida, Mutsuo Nakaoka: "Deadbeat Current Control with Adaptive predictor for Three-Phase Voltage-Source Active Power Filter", Proceedings of the 35th Power Electronics Specialist Conference of IEEE Power Electronics Society(PESC), pp.1010~1016, Aachen (Germany), June (2004)
- 26) M. Rukonuzzaman ,Katsumi Nishida, Mutsuo Nakaoka: "Harmonic and Reactive Current Estimation with Adaptive Neural Network and Their Compensation with DSP Control in Single Phase Shunt Active Power Filter", Proceedings of the 25th Telecommunication Energy Conference 2003 (INTELEC 2003), pp.385~365, Yokohama (Japan), October (2003)
- 27)Katsumi Nishida, Tarek Ahmed, Mutsuo Nakaoka, M. Rukonuzzaman: " A Robust Deadbeat Current Control Method by Using Adaptive Predictor for Single-phase Voltage Source Active Power Filter", Proceedings of the 29th Annual International Conference of IEEE Industrial Electronics Society (IECON), pp.1643~1648, Roanoke(USA), November (2003)
- 28)M. Rukonuzzaman, Katsumi Nishida, Mutsuo Nakaoka: "DSP Control Shunt APF with Harmonic Extraction by Adaptive Neural Network", Proceedings of the 38th IEEE Industry Applications Society Annual meeting (IAS), pp.1215~1221, Salt Lake City (USA), October (2003)

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- 29)Tarek Ahmed, Katsumi Nishida, Sinji Sato, Shinichiro Nagai, Eiji Hiraki and Mutsuo Nakaoka: "Variable-Speed Wind Turbine Coupled Three-Phase Self-Excited Induction Generator Voltage Regulation Scheme with Static VAR Compensator Controlled by PI Controller", Proceedings of Power Electronics Annual Conference, Korean Institute of Power Electronics, pp.532~534, (Korea), July (2003)
- 30)M. Rukonuzzaman, Katsumi Nishida, Mutsuo Nakaoka: "A Novel Single Phase Shunt Active Power Filter with Adaptive Neural Network Based Harmonic Detection", Proceedings of Power Quality Conference, PQP-1.04, Chicago (USA).October (2002)
- 31)Katsumi Nishida, Yoshihiro Konishi, Mutsuo Nakaoka: "A Robust Two-Dimensional Deadbeat Current Control Method by Using Adaptive Line Enhancer for Active Power Filter", Proceedings of 2002 IEEE International Symposium on Intelligent Control (ISIC), pp.384~390, Vancouver (CANADA), October (2002)
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- 33) Katsumi Nishida, Yoshihiro Konishi, Mutsuo Nakaoka: "Novel Current Control Scheme with Deadbeat Algorithm for Three-Phase Current-Source Active Power Filter", Proceedings of the 2001 IEEE International Symposium on Industrial Electronics (ISIE), pp.805~810, Pusan (Korea), June (2001)
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- 35)Katsumi Nishida, Yoshihiro Konishi, Mutsuo Nakaoka: "Dynamic System Modelling of Active Three-Phase Current-Source PWM Converter and Finite-Time Settling Controller", Proceedings of IEE-UK the Eighth International Conference on Power Electronics and Variable Speed Drives(PEVD), pp.483~488, London (UK), September (2000)
- 36)Tadashi Fukao, Atsushi Morita, Katsumi Nishida: "Minimum Time Settling Control Scheme For a Line Commutated Converter Output Current and a System Controller using a Microprocessors", Proceedings of Industrial Electronics and Control Instrumentation Society Annual Meeting(IECI), pp.92~97, Philadelphia (USA), March (1980)

### 【地域貢献】

- 1)平成 18 年高等専門学校等を活用した中小企業人材育成事業 講師 2006 年 11 月
- 2)山口県ひとつくり財団平成 18 年度地域学び塾サポート事業「電験3種受験講座」講師 2005 年

### 【受賞歴】

- 1)Best Paper Awards, IEEE PEDS 2013, Kita-kyusyu, April (2013)
- 2)Best Paper Award, IEEE, PEDS 2009

### 【科学研究費補助金】

- 1)基盤研究(C)(課題番号 22560289)「12 パルス整流回路を用いた信頼の高い風力発電システムの開発」,(代表) 西田克美, 総額 3,200 千円, 2010-2012 年度

### 【研究助成法人等からの競争的補助金】

- 1)公益財団法人 中国電力技術研究財団 試験研究 A: 「LCL フィルタを用いた系統連系インバータの制御に関する研究」,(単独)西田 克美, 400 千円, H24 年 4 月 1 日~H25 年 3 月 31 日

### 民間企業等からの共同・受託研究費

- 1)【共同研究】中国電機製造(株)「インバータ制御部の設定」(共同)西田克美, 総額 210 千円, 2009-2010 年度  
その他
- 1)IEEE PELS 論文査読員

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- 2) 電気学会 地球環境問題に対応する最新のパワー半導体スイッチング回路技術調査専門委員会委員 平成20年～平成22年
- 3) IET(英国電気学会)論文査読員