

個別基盤研究成果： 中村英滋

[A] 知的財産権、特許

- (a.1) 特許第4543182号、平成22年7月9日、発明者：中村英滋
「電磁石の励磁方法及びパルス電磁石システム」
その他： 個人科研費プロジェクト21540310の基本原理
- (a.2) 特許第4697961号、平成23年3月11日、
発明者：榎田顕、杉山英二、青木雅昭、村上嘉一、川久保忠通、中村英滋
「粒子線加速器用永久磁石および磁界発生装置」
備記： 個人科研費プロジェクト21540310の関連技術

[B] 査読付き原著論文（筆頭著者分）

(b.1) Eiji Nakamura, Sumio Kitajima, Masakazu Takayama, Shigeru Inagaki, Takeo Yoshida, Hiroshige Watanabe, Particle Transport Study with an Electron Beam on TOHOKU UNIVERSITY Helicac, Japanese Journal of Applied Physics (応用物理学会誌), Vol. 36, Part 1, no.2 (1997) pp.889-895.

備記： 東北大学 HELIAC 装置を用いた複雑磁場配位における荷電粒子輸送

(b.2) Eiji Nakamura, Fast-rise high-field kicker magnet operating in saturation, Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 612, Issue 1, 21 December (2009) pp.50-55.

備記： 個人科研費プロジェクト21540310の基礎理論と実証試験

(b.3) Eiji Nakamura, Fast-rise high-field multi-turn coil kicker magnet operating in saturation region, Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 618, Issue 1-3, 1 June - 21 June (2009) pp.22-29.

備記： 個人科研費プロジェクト21540310の応用研究：マルチターン電磁石

(b.4) Eiji Nakamura, Masakazu Takayama, Shin Yabukami, Electric field contributions of fast beam injection and ejection systems for particle accelerators, Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 624, Issue 3, 21 December (2010) pp.554-559.

備記： 個人科研費プロジェクト21540310における高電圧・強電界効果の評価

(b.5) Eiji Nakamura, Masakazu Takayama, Shin Yabukami, Fast beam injection and ejection method using a short-pulsed septum magnet for hadron accelerators, Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 640, Issue 1, 1 June (2011) pp.29-37.

備記： 個人科研費プロジェクト21540310のセプタムへの応用と粒子線制御全体の省電力化

(b.6) Eiji Nakamura, Masakazu Takayama, Shin Yabukami, Tomofumi Ichinomiya, Sho Nakamura, Development of fast-rise and high-field kicker magnet system for particle accelerators, Journal of the Magnetic Society of Japan (日本磁気学会誌), Volume 35, (2011) pp.96-101.

備記： 個人科研費プロジェクト21540310を含むキッカーシステムの開発全貌

(b.7) Eiji Nakamura, Yuya Sakai, Izumi Sakai, Masakazu Takayama, Shin Yabukami, Yoshihiro Ishi, Tomonori Uesugi, Tsukasa Nakamura, Yoshiaki Nakao, Shigeru Inagaki, A new fast-rise kicker magnet system by a waveform correction method using auxiliary magnets and a three bump orbit correction method, Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 665, Issue 1, 15 February (2012) pp.19-24.

[C] 査読付き原著論文 (共著者分)

(c.1) Ken Takayama, Kota Torikai, Yoshito Shimosaki, Tadaaki Kono, Taiki Iwashita, Yoshio Arakida, Eiji Nakamura, Masashi Shirakata, Takeshi Sueno, Masayoshi Wake, Kazunori Otsuka, Experimental demonstration of the KEK induction synchrotron, Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 577 (2007) pp.191-196.

備記： 科研費プロジェクト15GS0217の成果

誘導加速シンクロトロン、全種イオン加速器(AIA)、デジタル加速器

(c.2) Ken Makita, Tadamichi Kawakubo, Eiji Nakamura, Eiji Sugiyama, Masaaki Aoki, Flux loss of Nd-Fe-B sintered magnets placed near a proton synchrotron, Journal of the Magnetic Society of Japan, Volume 28 (2004) pp.326-329.

備記： 高放射線環境下動作永久磁石/永久磁石セプタム電磁石

(c.3) W. Jiang, K. Yatsui, K. Takayama, M. Akemoto, E. Nakamura, N. Shimizu, A. Tokuchi, S. Rukin, V. Tarasenko, A. Panchenko, Compact Solid-State Switched Pulsed Power and Its Applications, in: Proceedings of the IEEE, Vol.92, No.7, JULY 2004, pp. 1180-1196.

備記： 半導体スイッチ開発

(c.4) X. D. Zheng, M. Shiho, S. Maebara, E. Nakamura, A. Watanabe, T. Koarai, K. Takayama, J. Kishiro, K. Minami, K. Horioka, M. Ogawa, S. Kasaki, A corrugated waveguide driven by the linac as a prebuncher and seed-power generator of mm-wave FEL, Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 407 (1998) pp.198-20.

備記： 自由電子レーザー用コルゲート管発振実験

(c.5) Shigeru Inagaki, Sumio Kitajima, Masakazu Takayama, Eiji Nakamura, Takeo Yoshida and Hirohige Watanabe, Influence of biased electrode on plasma confinement in the Tohoku University heliac, Japanese Journal of Applied Physics, Volume 36 (1997) pp.3697-3706.

備記： ヘリカル軸ステラレータにおけるプラズマ電圧印加実験

(c.6) Hiroshige Watanabe, Sumio Kitajima, Masakazu Takayama, Eiji Nakamura and Shigeru Inagaki, Isotope separations in plasma by use of parametric resonance for D-T fusion reactor, The Japan Society of Plasma Science and Nuclear Fusion Research, Volume 72 (1996) pp.347-355.

備記： パラメトリック共鳴によるプラズマ分離技術

(c.7) Sumio Kitajima, Ryohta Kudoh, Shigeru Inagaki, Eiji Nakamura, Masakazu Takayama and Hiroshige Watanabe, Potential structure measurements of ECH plasma in a helical axis stellarator, Japanese Journal of Applied Physics, Volume 34 (1995) pp.4223-4229.

備記： ヘリカル軸ステラレータのプラズマにおける電位分布計測

[D] 査読付き内部報告書 (筆頭著者分のみ)

(d.1) ASN-496 (20070405) : Dielectric materials used in vacuum (II), April 5, 2007.

備記: 誘電体としてのフェライト特性

(d.2) ASN-493 (20060707) : Measurement of BL, I, V on Booster extraction bump magnet system for remodeling KEK-PS-Booster to AIA, July 7, 2006.

備記: 500MeV ブースター出射バンパ電磁石の電磁気特性再計測

(d.3) ASN-492 (20060703) : Primary report on the trial of power supply system for injection electric kicker into Booster of the PoP of All-ion-accelerator (AIA), remodeling from Booster ejection kicker power supply system, July 3, 2006.

備記: 500MeV ブースター出射キッカー電源の AIA 入射電界キッカーへの転用試験

(d.4) ASN-481 (20050218) : Kick angle and its space-variation of electric field produced in a gap of kicker magnets, February 10, 2005. Revised on Feb. 18, 2005.

備記: 電磁石ギャップ内部の電界

(d.5) ASN-479 (20041027) : Long pulse output examination for fast kicker magnet system, October 25, 2004. Revised on Oct. 27, 2004.

備記: キッカー電磁石のロングパルス化

(d.6) ASN-477 (20040622) : Impulse Q-magnet and Combined-type Kicker Magnet for Fast eXtraction, June 22, 2004.

備記: インパルス Q 電磁石、インパルス機能結合型キッカー

(d.7) ASN-476 (20040604) : High-repetition high-voltage examination by using flyback method, June 4, 2004.

備記: フライバック方式による MHz 高電圧発生試験

(d.8) ASN-475 (20040602) : Practical operation of fast ejection kicker FX1/MK6 started as auxiliary system, June 2, 2004.

備記: KEK-PS キッカー総括と、入射キッカーの出射キッカー転用運用開始

(d.9) ASN-455 (20011206) : Reconsideration of fast ejection kicker system for 3GeV RCS in JHF/JHP, December 6, 2001.

備記: 3 GeV キッカー再考

(d.10) ASN-450 (20011126) : Selection of the type of High voltage coaxial cables for pulse forming lines of new fast ejection kicker magnet system in MR of KEK 12GeV-PS, November 26, 2001.

備記: PFL 用高耐圧同軸ケーブル

(d.11) ASN-378 (19970414) : Magnetic field characteristics of proto-type magnet of new twin frame kicker magnet for ejection from KEK 12GeV-PS measured by using low voltage pulses, April 14, 1997.

備記: K2K 用 KEK 12GeV-PS MR fast extraction kicker 原型機

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- (2) Eiji Nakamura, Makasazu Takayama, Shin Yabukami, Fast beam injection and ejection method using a short-pulsed septum magnet for hadron accelerators, Nuclear Instruments and Methods in Physics Research A 640 (2011) pp.29-37. (査読有)
- (3) Eiji Nakamura, Makasazu Takayama, Shin Yabukami, Electric field contributions of fast beam injection and ejection systems for particle accelerators, Nucl. Instr. and Meth. A 624 (2010) pp.554-559. (査読有)
- (4) Eiji Nakamura, Fast-rise high-field multi-turn coil kicker magnet operating in saturation region, Nucl. Instr. and Meth. A 618 (2010) pp.22-29. (査読有)
- (5) Eiji Nakamura, Fast-Rise High-Field Kicker Magnet Operating at Saturation, Nucl. Instr. and Meth. A 612 (2009) pp.50-55. (査読有)
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- (9) Susumu Igarashi, Takako Miura, Eiji Nakamura, *et al.*, “Observation of Emittance Growth at the injection in the KEK PS Main Ring”, ID:1108 - WEBX02, ICFA HB2006.
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- (30) 中村英滋、高山正和、藪上信、一宮知史、中村升、粒子線加速器用高応答強磁場キッカー電磁石の開発、日本磁気学会誌、(2011年1月17日受理)、査読有。
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- (39) 中村英滋, 「MH z 級矩形パルス源を用いた陽子ビーム加速実証試験計画」第一回プラズマ応用研究会 (<http://etigo.nagaokaut.ac.jp/suematsu/program1.doc>), 2003年1月23日, 長岡技術科学大学.
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