

เอกสารอ้างอิง

บทที่ 1

- [1] J. B. Pendry, A. T. Holden, W. J. Stewart and I. Youngs "Extremely Low Frequency Plasmons in Metallic Mesostructures." *Phys. Rev. Lett.* **76**: 4773–4776, 1996.
- [2] Pendry, J. B., A. J. Holden, D. J. Robbins and W. J. Stewart 1999. "Magnetism from Conductors and Enhanced Linear Media," *IEEE Trans. Microwave Theory Tech.* **47**, 11: 2075-2084.
- [3] N. Wongkasem and A. Akyurtlu "Light Splitting Effects in Chiral Metamaterials," *Journal of Optics* **12** Vol. 3, January 2010.
- [4] N. Wongkasem, C. Kamtongdee, A. Akyurtlu and K. Marx "Artificial Multiple Helices: EH and Polarization Properties," *Journal of Optics* **12**, 075102, June 2010.
- [5] N. Wongkasem, C. Kamtongdee, A. Akyurtlu and K. Marx "Artificial Multiple Helices," *Europhysics News*, p15-16, July-August, 2010.
- [6] J. K. Gansel, M. Thiel, M. S. Rill, M. Decker, K. Bade, "Gold Helix Photonic Metamaterial as Broadband Circular Polarizer", *Science* **325**, 1513, 2009.
- [7] V. A. Fedotov, P. L. Mladyonov, S. L. Prosvirnin, A. V. Rogacheva, Y. Chen, and N. I. Zheludev, "Asymmetric Propagation of Electromagnetic Waves through a Planar Chiral Structure", *Phys. Rev. Lett.* **97**, 167401, 2006.
- [8] J. Zhou, J. Dong, B. Wang, T. Koschny, M. Kafesaki, and C. M. Soukoulis, "Negative refractive index due to chirality", *Phys. Rev. B* **79**, 121104(R), 2009.
- [9] E. Plum, J. Zhou, J. Dong, V. A. Fedotov, T. Koschny, C. M. Soukoulis, and N. I. Zheludev, "Metamaterial with negative index due to chirality", *Phys. Rev. B* **79**, 035407, 2009.
- [10] K. Matra and N. Wongkasem, "Left-handed chiral isotropic metamaterials: analysis and detailed numerical study," *Journal of Optics A: Pure and Applied Optics, Artificial Chiral Materials* (special issue), **11**, 074011, June 2009.
- [11] D. J. Kern and D. H. Werner, "A Genetic Algorithm Approach to the Design of Ultra-Thin Electromagnetic Bandgap Absorbers," *Microwave and Optical Tech. Lett.*, Vol. 38, No. 1, 2003.

- [12] S. Chakravarty, R. Mittra and N. Rhodes, "Application of a Microgenetic Algorithm (MGA) to the Design of Broad-Band Microwave Absorbers Using Multiple Frequency Selective Surface Screens Buried in Dielectrics," *IEEE Trans. on Antennas and Propag.*, Vol. 50, No. 3, pp. 284-296, 2002.
- [13] F. Bilotti, L. Nucci, and L. Vegni, "An SRR based Microwave Absorber," *Microwave and Optical Tech. Lett.*, Vol. 48, No. 11, pp. 2171-2175, 2006.
- [14] N. I. Landy, S. Sajuyigbe, J. J. Mock, D. R. Smith, and W. J. Padilla, "Perfect Metamaterial Absorber," *Physical Review Letters* **100**, 207402, 2008.
- [15] H. Tao, N. I. Landy, C. M. Bingham, X. Zhang, R. D. Averitt, and W. J. Padilla, "A Metamaterial absorber for the terahertz regime: Design, fabrication and characterization," *Optic Express* Vol. 16, No. 10, pp. 7181-7188, 2008.
- [16] J. F. Wang, S. B. Qu, Z. T. Fu, H. Ma, Y. M. Yang and X. Wu, "Three-Dimensional Metamaterial Microwave Absorbers Composed of Coplanar Magnetic and Electric Resonators," *PIER Letters*, Vol. 7, pp. 15-24, 2009.
- [17] W. Zhu and X. Zhao, "Metamaterial absorber with dendritic cells at infrared frequencies," *J. Opt. Soc. Am. B*, Vol. 26, No. 12, pp. 2382-2385, 2009.
- [18] Z. Bo, W. Zheng-Bin, Y. Zhen-Zhong, Z. Qi, Z. Jun-Ming¹, F. Yi-Jun, J. Tian, "Planar Metamaterial Microwave Absorber for all Wave Polarizations," *CHIN. PHYS. LETT.* Vol. 26, No. 11, 114102, 2009.
- [19] "Radar Absorber" US Patent 5,147,718, September 15, 1992.
- [20] "Housing with Radar-Absorbent Properties" US Patent 6,111,551, August 29, 2000.
- [21] "Hot Melt Radar Absorbing Material" US Patent 6,411,248 B1, June 25, 2002.
- [22] "Radar Absorbing Electro-thermal De-Icer" US Patent 0067532, March 31, 2005.
- [23] "Radar Absorbing Coatings" US Patent 6,909,395 B1, June 21, 2005.
- [24] "Radar Emissions Absorbing Material" US Patent 0058187, March 16, 2006.
- [25] "Blocker Device for Eliminating Specula Reflectance from a Diffuse Reflection Spectrum" US Patent 4,661,706, April 28, 1987.
- [26] "Method for Enhancing Attenuation Characteristic of Absorbent Materials Useful with Dermal and Transdermal Substance Delivery Systems" US Patent 0020321 A1, January 25, 2007.
- [27] "Electric Wave Absorber" Japan Patent 56-115008, September 10, 1981.

- [28] "Electromagnetic Wave Absorber Laying Structure" Japan Patent 2001-013085, January 14, 2000.
- [29] "Microstrip Line Structure" Japan Patent 2001-102818, April 13, 2001.
- [30] "Portable Radio Wave Shielding Case" Japan Patent" Japan Patent 2001-196780, July 19, 2001.
- [31] "Removing Device for Electromagnetic Wave" Japan Patent 2001-225798, August 21, 2001.
- [32] "Granular Material Having Electromagnetic Wave Absorption Property and its Manufa Methods" Japan Patent 2002-111274, April 12, 2002.
- [33] "Electromagnetic Wave Absorber" Japan Patent 2004-104063, April 2, 2004.
- [34] "Radio Wave Absorber" Japan Patent 2008-124154, May 29, 2008.
- [35] "Composite Type Radio Wave Absorber" Japan Patent 2009-043984, February 26, 2009.
- [36] "Selective Wireless Communication Blocker" US Patent 2003/0143943 A1, July 31, 2003.
- [37] "Transmission Blocker for Mobile Radio Stations and Method for Preventing Transmission Activities of a Mobile Radio Station" US Patent 6,195,529 B1, February 27, 2001.
- [38] "Wavelength Blocker" US Patent 2003/0108284 A1, June 12, 2003.
- [39] "Wave Blocker System and Methods" US Patent 2005/0152218 A1, July 14, 2005.

บทที่ 2

- [1] Zhou, J., Dong, J., Wang, B., Koschny, T., Kafesaki, M. and Soukoulis, C. M. (2009). Metamaterial with negative index due to chirality," [Electronic version]. Phys. Rev. B, **79**, 121104(R).
- [2] Plum, E., Zhou, J., Dong, J., Fedotov, V. A., Koschny, T., Soukoulis, C. M. and Zheludev, N. I. (2009). Metamaterials with negative index due to chirality. [Electronic version]. Phys. Rev. B, **79**, 035407.
- [3] Wang, B., Zhou, J., Koschny, T., Kafesaki M. and Soukoulis, C. M. (2009). Chiral metamaterials: simulations and experiments. [Electronic version]. J. Opt. A: Pure Appl. Opt., **11**, 114003.
- [4] Li, Z., Zhao, R., Koschy, T., Kafesaki, M., Alici, K. B., Colak, E., Caglayan, H.,

- Ozbay, E. and Soukoulis, C. M. (2011). Chiral metamaterials with negative refraction index based on four "U" split ring resonator. [Electronic version]. Appl. Phys. Lett., **94**, 081901.
- [5] Xiong, X., Sun, W. H., Bao, Y. J., Peng, R. W., Sun, C., Lu, X., Shao, J., Li, Z. F. and Ming, N. B. (2010). Constuction of a chiral metamaterial with a U-shaped resonator assembly. [Electronic version]. [Electronic version]. Phys. Rev. B, **81**, 075119.
- [6] Xiong, X., Sun, W. H., Bao, Y. J., Peng, R. W., Wang, M., Sun, C., Lu, X., Shao, J., Li, Z. F. and Ming, N. B. (2009). Switching the electric and magnetic responses in a metamaterial. [Electronic version]. [Electronic version]. Phys. Rev. B, **80**, 201105(R).
- [7] Svirko, Y. Zheludev N. and Osipov, M. (2001). Layered chiral metallic microstructure with inductive coupling. Appl. Phys. Lett., **78**, 498.
- [8] Bruice, P. Y. (2004). Organic chemistry. 4th edition, United State of America : Prentice Hall.
- [9] Bruice, P. Y. (2010). Organic chemistry. 6th edition, United State of America : Prentice Hall.
- [10] Plum, E., Zhou, J., Dong, J., Fedotov, V. A., Koschny, T., Soukoulis, C. M. and Zheludev, N. I. (2009). Negative index due to chirality. [Electronic version]. Phys. Rev. B, **79**, 035407.
- [11] M. Silveirinha and N. Engheta, "Design of matched zero-index metamaterials using nonmagnetic inclusions in epsilon-near-zero media", Phys. Rev.B **75**, 075119, 2007.
- [12] R. W. Ziolkowski, "Propagation in and scattering from a matched metamaterial having a zero index of refraction", Phys. Rev.E **70**, 046608, 2004.
- [13] S. Enoch, G. Tayeb, P. Sabouroux, N. Guerin, and P. Vincent, "A Metamaterial for Directive Emission" Phys. Rev. Lett., vol. **89**, 213902, 2002.
- [14] A. Alu, M. G. Silveirinha, A. Salandrino and N. Engheta, "Epsilon-near-zero metamaterials and electromagnetic sources: Tailoring the radiation phase pattern", Phys. Rev.B **75**, 155410, 2007.
- [15] B. Wang and K.-M. Huang, "Shaping the radiation pattern with mu and epsilon near-zero metamaterials", Progress In Electromagnetics Research, Vol. **106**, 107-119, 2010.
- [16] X.Wang, Y. Feng, S. Chen, Z. Zhao and C. Zhou, "Beam Combination Using Near-

Zero Index Metamaterials" IEEE, 2010.

- [17] S. J. Franson and R. W. Ziolkowski, "Confirmation of Zero-N Behavior in a High Gain Grid Structure at Millimeter-Wave Frequencies", IEEE Antennas and Wireless Propagation Letters, Vol. 8, 2009.
- [18] H. Zhou, Z. Pei, S. Qu, S. Zhang, J. Wang, Z. Duan, H. Ma and Z. Xu, "A Novel High-Directivity Microstrip Patch Antenna Based on Zero-Index Metamaterial", IEEE Antenna and Wireless Propagation Letters, Vol. 8, 2009.
- [19] Q. Wu, P. Pan, F. Y. Meng, L. W. Li and J. Wu, "A novel flat lens horn antenna designed based on zero refraction principle of metamaterials" Appl. Phys. A **87**, 151–156, 2007.
- [20] D. Kim and Jaeick Choi, "Study of Antenna Gain Enhancement using a Near-Zero Refractive Index and Fabry-Perot Cavity Resonance", 3rd International Congress on Advanced Electromagnetic Materials in Microwave and Optic, 2009.
- [21] H. C. Huang, K. H. Lin, H. L. SU, C. Y. Wu, and H. H. Lin, "Design of Dual-Polarized High-Gain Antenna Radome by Using Jerusalem Cross Metamaterial Structure", IEEE, 2009.
- [22] M. Silveirinha and N. Engheta, "Tunneling of Electromagnetic Energy through Subwavelength Channels and Bends using Near-Zero Materials" Phys. Rev. Lett., **97**, 157403, 2006.
- [23] B. Zhou and T. J. Cui, "Directivity Enhancement to Vivaldi Antennas Using Compactly Anisotropic Zero-Index Metamaterials, IEEE Antennas and Wireless Propagation Letters, Vol. 10, 2011.
- [24] S. J. Franson and R. W. Ziolkowski, "Gigabit per Second Data Transfer in High-Gain Metamaterial Structures at 60 GHz" IEEE Trans. Antennas Propag., Vol. 57, No. 10, 2009.
- [25] N. T. TUNG, Y. P. LEE and V.D. Lam, " Transmission Properties of Electromagnetic Metamaterials : From Split-Ring Resonator to Fishnet Structure" Opt. Rev. Vol. 16, No. 6, 578–582 2009.
- [26] J. Zhou, L. Zhang, G. Tuttle, T. Koschny and C. M. Soukoulis, " Negative index materials using simple short wire pairs", Phys. Rev. B , **73**, 041101, 2006
- [27] M. Kafesaki, I. Tsiapa, N. Katsarakis, Th. Koschny, C. M. Soukoulis and E. N. Economou, "Left-handed metamaterials: The fishnet structure and its variations," Phys. Rev. B **75**, 235114, 2007

- [28] D. R. Smith, S. Shultz, P. Markos, and C. M. Soukoulis, "Determination of effective permittivity and permeability of metamaterials from reflection and transmission coefficients," *Phys. Rev. B*, vol. **65**, p. 195104, 2002.
- [29] X. Chen, T. Grzegorzczuk, B.-I.Wu, J. Pacheco, Jr., and J. A.Kong, "Robust method to retrieve the constitutive effective parameters of metamaterial," *Phys. Rev. E*, vol. **70**, p. 016608, 2004.