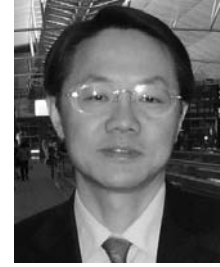


# Resume



## 1. Personal Information

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## 2. Professional Experience

*Visiting Professor* on School of Computing, Engineering and Mathematics, University of Western Sydney during 3-9<sup>th</sup>, Sept., 2014

*Senior Research Scholar* in Dept. of Electrical and Computer Engineering, University of California-Davis since Jan. 2013- July, 2013

*Distinguished Professor* on Information and Communication Engineering, Dept. of Communication Engineering in SIST, Xiamen University **since Dec.2012**

*Visiting Professor* on School of Computing, Engineering and Mathematics, University of Western Sydney during Sept. 28, 2012- Oct. 1, 2012

*Associate Dean*, School of Information Science and Tech, Xiamen University, Dec. 2003 - Dec. 2012

*Professor(No fixed-term)*on Communication and Information Systems, Dept of Communication Engineering in SIST, Xiamen University since Aug. 2010 to June, 2023

*Professor(fixed-term)*on Communication and Information Systems, Dept of Communication Engineering in SIST, Xiamen University since Nov. 2002 to July, 2010

*Research Assistant*, Department of Electronic Engineering, City University of Hong Kong, Jan. 2003-Apr. 2003

*Associate Professor* on Communication and Information Systems, School of Communication and Information Engineering, Chongqing University of Post & Telecommunications, Dec. 1999-2002

*Visiting Scholar* on Math & Physics, University of New England, Australia during Oct.1995-Oct.1996

*Lecturer* on Applied Mathematics, School of Applied Science, Chongqing University of Post & Telecomm., Dec.1991-1999

*Teaching Assistant* on Mathematics, Department of Mathematics Science, Chongqing Normal University, Jul. 1984-1986

## 3. Education Experience

*Ph.D* on Circuits and Systems (The subject is top one in China), University of

Electronic Science and Technology of China during Sept.1997-Jun. 2001; Advisor: Prof. Juebang Yu  
Thesis: Research on the Application of Chaotic Spreading Spectrum Technique to CDMA Communication Systems  
**M.S.** on Applied Mathematics, Yunnan University, China during Sept. 1986-Dec. 1988; Advisor: Prof. Jibin Li  
Thesis: Chaos and Bifurcations in Circuits Equations from Phase Locked Loop  
**B.S. (Honor)** on Mathematics, Chongqing Normal University, China during Sept. 1980-Jul. 1984

#### **4. Academic and Technological Achievements**

**A. Academic Contributions:** peer recognition journal papers accepted and published:60, JCR-SCI:51, including IEEE Journal papers:28; international conference papers published: 70

##### **I. Basic research on Chaotic Modulations**

###### **1) Capacity properties of nonlinear modulations over different channels**

[J1]Wei Hu, **Lin Wang**, Guofa Cai, Guanrong Chen, Non-Coherent Capacity of M-ary DCSK System over Multipath Rayleigh Fading Channels, Accepted by *IEEE Access*, Oct, 2016

[J2]Guofa Cai, **Lin Wang**, Guanrong Chen, Capacity of the Non-Coherent DCSK system over Rayleigh Channel, Accepted by *IET Communications*, 2016

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[J4]Lifen Ye, GR Chen, **Lin Wang**, Essence and Advantages of FM-DCSK Technique versus Conventional Spreading Spectrum Communication Method, *Circuits, Systems and Signal Processing*, Vol.24, No.5, Oct., 2005.

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###### **2) M-ary constellation properties of chaotic modulations**

[J5]**Lin Wang**, GuofaCai, Guanrong Chen, Design and Performance Analysis of a New Multiresolution M-ary Differential Chaos Shift Keying Communication System, *IEEE Transaction on Wireless Communications*, Vol.14, No.9, Sept.2015.

[J6]Guofa Cai, Yi Fang, Guojun Han, Francis C. M. Lau, **Lin Wang**, A Square-Constellation-Based M-ary DCSK Communication System, Accepted by *IEEE Access*, 2016

###### **3) Improved or optimized chaotic modulations**

[J7]Weikai Xu, **Lin Wang**, G. Kolumban,A New Data Rate Adaption Communications Scheme for Code-Shifted Differential Chaos Shift Keying Modulation, *International Journal of Bifurcations and Chaos*, No.8,Vol.22, 2012.

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[C3]Chen Liming, Xu Weikai, **Lin Wang**, Performance of Improved FM-DCSK system Based on Differential-coding Method, ICCCAS2008/IEEE, May 25-27th, 2008, Xiamen, China.

#### 4) **Performance analysis of chaotic modulations over different channels**

[J12]**Lin Wang**, GuofaCai, Guanrong Chen, Design and Performance Analysis of a New Multiresolution M-ary Differential Chaos Shift Keying Communication System, *IEEE Transaction on Wireless Communications*, Vol.14, No.9, Sept.2015.

[J13]Weikai Xu, **Lin Wang**, G. Kolumban, A New Data Rate Adaption Communications Scheme for Code-Shifted Differential Chaos Shift Keying Modulation, *International Journal of Bifurcations and Chaos*, No.8, Vol.22, 2012.

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[C4]Yi Fang, **Lin Wang**, Guanrong Chen, Performance of a Multiple-Access DCSK-CC System over Nakagami-m Fading Channels, Proc. ISCAS 2013/IEEE, 26-28th, May, 2013, Beijing, China.

## II. **Joint chaotic modulations and other physical layer techniques**

### 1) **Iterative receiver and detector based on M-ary DCSK**

[J1]YiboLv, **Lin Wang**, GuofaCai, Guanrong Chen, "Iterative Receiver for M-ary DCSK systems", *IEEE Transaction on Communications*, Vol.63, No.11, Nov.2015

[C1]Yibo Lv, **Lin Wang**, Zixiang Xiong, Performance Advantage of Joint Source-Channel Decoder over Iterative Receiver under M-ary Differential Chaotic Shift Keying Systems, Proc. VTC Spring 2016/IEEE, 15-18th, May, 2016, Nanjing, China

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[C3]YiboLv, GuofaCai, **Lin Wang**, Iterative Demodulation and Decoding of LDPC-Coded M-ary DCSK Modulation over AWGN Channel, Proc.ISMICT2014 /IEEE, April 2-4th, 2014, Florence, Italy.

## 2) **Trellis and block Coded Chaotic Modulations**

[J2]Yanchun He, **Lin Wang**, Chenglong Zhou, Guanrong Chen, Design and Performance Analysis of a Novel Trellis-Coded Differential Chaotic Modulation System, Accepted by *IET Communications*, Oct., 2016

[J3]Jia Zhan, **Lin Wang**, Marcos Katz, Guanrong Chen, A Differential Chaotic Bit-interleaved Coded Modulation System over Multipath Rayleigh Channels, Submitted to *IEEE Transaction on Communications*, Oct, 2016

## 3) **Index modulations based on DCSK**

[J4]Guixian Cheng, **Lin Wang**, Weikai Xu, Guanrong Chen, Carrier Index Differential Chaotic Shift Keying Modulation, accepted by *IEEE Trans.Circuits and Syst -II*, 2016

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## **III. Combination of Chaotic modulations and other physical layer techniques**

### 1) **Chaotic modulation based cooperative or relay communications**

[J1]Yi Fang, Jing Xu, **Lin Wang**, G. R. Chen, "Performance of MIMO relay DCSK-CD systems over nakagami fading channels", *IEEE Trans. Circuits and Syst.-I*, Vol.60, No.3, Mar., 2013.

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### 2) **Channel coded chaotic communication systems**

[J3]Chaoxian Zhang, **Lin Wang**, Guanrong Chen, Promising Performance of PA Coded SIMO FM-DCSK Communication Systems, *Circuits, Systems and Signal Processing*, Vol.27, No.6, Nov., 2008.

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### 3) Chaotic MIMO transmission systems

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### 4) Multi carrier chaotic modulations

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### 5) Energy transform based on chaotic modulations

[J6] Weikai Xu, Zheng Yang, Zhiguo Ding, **Lin Wang** and Pingzhi Fan, "Wireless Information and Power Transfer in Two-Way Relaying Network with Non-Coherent Differential Modulation," *EURASIP Journal on Wireless Commun. and Networking*, 2015:131

### 6) Cross-layer design (ARQ, CARQ, etc)

[J7] Yi Fang, **Lin Wang**, Jing Xu, Pingping Chen, Guanrong Chen, Weikai Xu, Design and Analysis of a DCSK-ARQ/CARQ System over Multipath Fading Channels, *IEEE Trans. Circuits and Syst-I*, Vol.62, No.11, June 2015.

## IV. Applications of Chaotic modulations to UWB systems

### 1) Signal Design for chaotic modulation based UWB system

[J1] Yi Fang, Pingping Chen, and **Lin Wang**, "Performance analysis and optimization of a cooperative FM-DCSK UWB system under indoor environments," Vol.1, No.2, June, 2012, *IET Networks*.

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[C6] Xin Min, Weikai Xu, **Lin Wang**, An SIMO FM-DCSK UWB Scheme for Low-rate WPAN Applications, ISCT 2009/IEEE, Sept.28-30, 2009, Incheon, Korea.

## 2) Co-existence analysis between chaotic modulation and conventional communications

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## 3) Synchronization of chaotic UWB systems

[J5] Shaoyuan Chen, **Lin Wang**, Guanrong Chen, Data-Aided Timing Synchronization for FM-DCSK UWB Communication Systems, *IEEE Transaction on Industrial Electronics*, Vol.57, No.5, May, 2010.

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## 4) Compressed sensing based chaotic transmission

[C10] Zhi Lin, **Lin Wang**, Eryk Dutkiewicz, Xiaojing Huang, Performance Analysis of Chaotic Sampling and Detection in CS-DCSK UWB System, Proc. VTC Spring 2016/ IEEE, 15-18th, May, 2016, Nanjing, China

## 5) UWB implementation

[J6] Zhexin Xu, **Lin Wang**, Kyung Sup Kwak, Guanrong Chen, Designing Delay Lines Based on GDRR for TR-UWB Systems, *IET Communications*, No.17, Vol.5, 2011.

[J7] Zhexin Xu, **Lin Wang**, Guanrong Chen, Designing Delay Lines Based on the SD/DE Algorithm for Transmitted-Reference Ultra-Wideband System, *Circuits, System and Signal Processing*, Vol.30, No.6, Dec., 2011.

## V. Information theory and codes

### 1) Optimizing Design of Protograph LDPC Codes over non-standard channels

[J1] Yi Fang, Yong Liang Guan, **Lin Wang**, Francis C. M. Lau, "Rate-Compatible Root-Protograph LDPC Codes for Quasi-Static Fading Relay Channels", *IEEE Transaction on Vehicular Technology*, Vol.65, No.4, April, 2016

[J2]Pingping Chen, Lingjun Kong, Yi Fang, **Lin Wang**, “The Design of Protograph LDPC Codes for 2-Dimensional Magnetic Recording Channels”,*IEEE Transaction on Magnetics*, Vol.51, No.11, 2015

[J3]Yi Fang, K.-K.Wong, **Lin Wang**, K.-F.Tong, “Performance analysis of protograph LDPC codes for Nakagami-m fading relay channels”, *IET Communications*, Vol.7, No.11, 2013.

[J4]Guangfu Wu, **Lin Wang**, “Construction of High Rate LDPC Codes with Short Block Length”, *Journal of Applied Sciences*, Vol.31, No.12, 2013 (EI, in Chinese)

[J5]Yi Fang, Pingping Chen, **Lin Wang**, Francis C. M. Lau, and Kai-Kit Wong “Performance Analysis of Protograph-based LDPC Codes with Spatial Diversity”, *IET Communications*, Vol.6, No.17, Nov.,2012.

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[J7]Pingping Chen, Yi Fang, **Lin Wang**, A Family of Protograph-based LDPC for PR Channels, *Journal of Applied Sciences*, No.1, Vol.30, Jan.,2012 (EI, in Chinese)

[J8] Min Xiao, **Lin Wang**, Tiffany Jing Li, Designing Rate-Compatible Irregular Repeat Accumulate Codes through Splitting, *IEEE Communications Letters*, Vol.15, No.10, Oct, 2011.

[J9] Yi Fang, **Lin Wang**, Pingping Chen, Min Xiao, A joint optimizing algorithm for protograph LDPC codes, *Journal of Applied Sciences*, Vol.29, No.6, Dec.2011 (in Chinese)

[J10]Min Xiao, Yong Li, **Lin Wang**, A Novel Puncturing Algorithm to Design Finite-Length Rate-Compatible LDPC Codes, *Journal of Applied Sciences*, Vol.29, No.4, 2011 (in Chinese)

[J11]Juan Xiao, **Lin Wang**, Lizhao Deng, “Density Evolution Method and Its Threshold Determination for Irregular LDPC Codes,” *Journal of Electronic and Information*, 2005, 27(4) (in Chinese)

[C1] Sijie Yang, **Lin Wang**, Yi Fang, Pingping Chen, Performance of Improved AR3A Codes over EPR4 Channel, 3rd ICCRD/IEEE, Mar.11-13th, 2011, Shanghai, China.

[C2] Ying You, Min Xiao, **Lin Wang**, The Rate-Compatible Multi-Edge Type LDPC Codes with Short Block Length, WiCOM 2009/IEEE, Sept.24-26, 2009, Beijing, China.

[C3]**Lin Wang**, Xiao juan, Chen Guangron, Density Evolution Method and Threshold Decision for Irregular LDPC Codes, Proc.ICCCAS2004/IEEE, June 27-29, 2004, Chengdu, China.

## 2) Decoding for LDPC Codes

[J12]Yibo Lv, **Lin Wang**, Shaohua Hong, Zixiang Xiong, A Reliability-Oriented Belief Propagation Decoding Algorithm for LDPC codes, submitted to *IET Communications*, August, 2016

[J13]Yi Fang, Jianwen Zhang, **Lin Wang**, Joint Decoding Algorithm of LDPC Codes, *Journal of System Engineering and Electronics*, Vol.33, No.6, June, 2011(in Chinese)

[J14] Dongfu Xie, **Lin Wang**, Pingping Chen, Decoder with low resource overhead for multi-edge type LDPC codes based on cache, *Journal of Applied Sciences*, 2010, 28(6) (in Chinese)

[J15] Weikai Xu, **Lin Wang**, Performance Simulation of LDPC Codes through SPW Platform, *Journal of System Simulations*, 2005, 17(10) (in Chinese)

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[C6] Z.H.Cai, J.Hao, **L.Wang**, An Efficient Early Stopping Scheme for LDPC Decoding Based on Check-Node Message, ICCS 2008/IEEE, 19-20th, Nov., 2008, Singapore.

### 3) Non-binary LDPC Coding & Decoding

[C7] Zhang Jianwen, Xiao Min, **Lin Wang**, Encoder Design and Its Hardware Implementation for Q-ary LDPC Codes, ICCAS2008/IEEE, May 25-27th, 2008, Xiamen, China.

[C8] Yang Xiang, **Lin Wang**, Li Yong, Performance of Q-ary PCGC Based on PEG Algorithm, ISPACS2007/IEEE, Nov.28-Dec.1, 2007, Xiamen, China.

[C9] Long Ma, **Lin Wang**, Jianwen Zhang, Performance Advantage of Non-binary LDPC Codes At High Code Rate under AWGN Channel, ICCT2006/IEEE, Nov.27-30th, 2006, Guilin, China.

[C10] Junbin Chen, **Lin Wang**, Yong Li, Performance Comparison between Non-binary LDPC Codes and Reed-Solomon Codes over Noise Burst Channels, Proc. ICCAS2005/IEEE, May 27-30, Hong Kong, China (**best paper**).

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### 4) Turbo-like Codes

[J16] Qinfang Wei, **Lin Wang**, Gefei Yu, Design and Simulation for Punctured Woven Convolutional Codes, *Journal of University of Electronic Science and Technology of China* (UESTC), 2008, 37 (1) (in Chinese)

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#### 5) Algebra Coding & Decoding

[J16]Yong Li, Pengwei Zhang, **Lin Wang**, T.K.Truong, Comments on “On decoding of the (89, 45, 17) Quadratic Residue Code”, *IEEE Transaction on Communications*, Vol.63, No.2, Feb., 2015.

[J17]**Lin Wang**, Yong Li, T. K.Truong, T.C Lin “On decoding of the (89, 45, 17) Quadratic Residue Code”, *IEEE Transactions on Communications*, Vol.61, No.3, 2013.

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#### 6) Channel Codes in Digital Communications

[J21]Pingping Chen, Yi Fang, **Lin Wang**, Francis C. M. Lau, “Decoding Generalized Joint Channel Coding and Physical Network Coding in the LLR Domain”, *IEEE Signal Processing Letters*, Vol.20, No.2, Feb., 2013.

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## 7) **Joint source-channel coding& decoding and their applications in imaging communications**

[J24]Qiwang Chen, **Lin Wang**, Shaohua Hong, Zixiang Xiong, Performance Improvement of JSCC Schemes through Redesigning Channel Code, *IEEE Communication Letters*, Vol.20, No.6, June, 2016

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[C26]Liangliang Xu, **Lin Wang**, Shaohua Hong, Huihui Wu, New Results on Radiography Image Transmission with Unequal Error Protection Using Protograph Double LDPC Codes, Proc.ISMICT2014 /IEEE, April 2-4th, 2014, Florence, Italy.

[C27]Liangliang Xu, Huihui Wu, Jiguang He, **Lin Wang**, Unequal Error Protection for Radiography Image Transmission Using Protograph Double LDPC Codes, Proc.WTS 2013/IEEE, Phoenix, Arizona, USA, 17-19th, April, 2013.

[C28]Jiguang He, **Lin Wang** and Pingping Chen, “A Joint Source and Channel Coding Scheme Base on Simple Protograph Structured Codes,” in Proc. IEEE ISCIT, Gold Coast, Australia, Oct. 2012.

[C29]Huihui Wu, Jiguang He, Liangliang Xu, **Lin Wang**, Joint Source-Channel Coding Based on P-LDPC Codes for Radiography Images Transmission, Proc. of 12th IEEE IUCC, June 25-27th,2012,Liverpool, UK.

## **VI. Signal Processing and others**

### 1) **Signal Processing for Communications**

[J1]Shaohua Hong, Zhiguo Shi, **Lin Wang**, Yujie Gu, Kangsheng Chen, “Adaptive regularized particle filter for synchronization of chaotic Colpitts circuits in an AWGN channel,” *Circuits, Systems, and Signal Processing*, Vol. 32, No. 2, Apr. 2013

[J2]Shaohua Hong, **Lin Wang**, T.K.Truong, “Novel Approaches to the Parametric

Cubic-Spline Interpolation”, *IEEE Transaction on Imaging Processing*, Vol.22, No.3, Mar., 2013.

[J3]Shaohua Hong, **Lin Wang**, Zhiguo Shi, Kangsheng Chen, Simplified Particle PHD Filter for Multiple-Target Tracking: Algorithm and Architecture, *Progress in Electromagnetics Researchers*, Dec.2011 (SCI, JCR2)

[C1]Shaohua Hong, Xinyuan Yu, Qiwan Chen, **Lin Wang**, Improved Nonlinear Resolution Enhancement Based on Laplacian Pyramid, in Proc. IEEE ISCIT, Qingdao, China, 26-28<sup>th</sup>, Sept., 2016

[C2]Silin Zhu, Shaohua Hong, **Lin Wang**, An improved nonlinear image enhancement algorithm, Proc. ISCIT 2014/IEEE, 24th-26th, Sept., 2014, Incheon, Korean.

[C3]Jianxing Jiang, Shaohua Hong, **Lin Wang**, A Space-Variant Cubic-Spline Interpolation, Proc. of 21th European Signal Processing Conference, 9-13th, Sept., 2013, Marrahech, Morocco.

[C4]L. T. Lin, S. H. Hong, T. K. Truong, **Lin Wang**, An improved approach to the cubic-spline interpolation, Proceedings of SPIE- Applications of Digital Image Processing, Aug. 26-29, 2013, San Diego, CA, United States

[C5]Shaohua Hong, Jianxing Jiang, **Lin Wang**, “Improved Residual Resampling Algorithm and Hardware Implementation for Particle Filters,” in Proc of 4th WCSP, Huangshan, China, Oct, 2012.

[C6]T.K.Truong, Shaohua, Hong, **Lin Wang**, et al, “The Parametric Cubic-Spline Interpolation,” in Proc. IEEE IPCV, Las Vegas, USA , July 16-19, 2012

[C7]Shaohua Hong, **Lin Wang**, Improved Roughening Algorithm and Hardware Implementation for Particle Filter Applied to Bearings-Only Tracking, ISCIT 2011/IEEE, 12-14th, Oct., 2011, Hangzhou, China

## 2) Multiple Access

[J4]Weikai Xu, **Lin Wang**, Performance Simulation of WCDMA Down-link Based on LDPC Codes, *Journal of System Simulations*, 2007, 19(4) (in Chinese)

[C7]Yang Shanshan, Xu Weikai, **Lin Wang**, Wei Qinfang, Performance of STBC-IDMA System over Quasi-Static Rayleigh Fading Channel, ICCAS2008/IEEE, May 25-27th, 2008, Xiamen, China.

[C8]Yao Luo, **Lin Wang**, Jun Ling, The Coding-Spreading Trade-off in LDPC-Coded Interleave-Division Multiple-Access (IDMA) System, ICCT2006/IEEE, Nov.27-30, 2006, Guilin, China.

[C9]Jun Ling, **Lin Wang**, Yao Luo, Haibin Wang, Performance of LDPC-Coded Interleave-Division Multiple-Access (IDMA) System, Proc.ICWMMN 2006/IET, Nov.6-9,2006, Hangzhou, China.

[C10]**Lin Wang**, Mu Wei, Hongyu Zhang, Juebang Yu, Performance Comparison between Q-CDMA and Chaotic Spreading Spectrum CDMA Communication System over Saleh Indoor Channel, Proc. APCCAS2000/IEEE, pp300-303, Dec.4-6, 2000, Tianjin, China

## 3) Cognitive Radio & Security

[C11]Yogesh Nijure, Georges Kaddoum, Golnaz Ghodoosipour Guofa Cai, **Lin Wang**, A Novel Spectrum Sensing Mechanism Based on Distribution Discontinuity

Estimation within Cognitive Radio, Proc.VTC Fall 2016/IEEE, 18-21, Sept.2016, Montreal, Canada

[C12]Long Kong, Jiguang He, Georges Kaddoum, Satyanarayana Vuppala, **Lin Wang**, Secrecy Analysis of A MIMO Full-Duplex Active Eavesdropper with Channel Estimation Errors, Proc.VTC Fall 2016/IEEE, 18-21, Sept.2016, Montreal, Canada

#### 4) **Nonlinear Dynamics & its applications**

[J5]Jinde Cao, **Lin Wang**, Exponential stability and periodic oscillatory solution in BAM networks with delays, *IEEE Trans. Neural Networks*, Vol.13, No.2, Mar.2002 (SCI, JCR1)

[J6]Jinde Cao, **Lin Wang**, Periodic Oscillatory Solution of Bidirectional Associative Memory Networks with Delays, *Physical Review E*, Vol.61, No.2, Feb., 2000

[J7]Xiao-Song Yang, Quan Yuan, **Lin Wang**, What connection Topology Prohibit Chaos in Continuous Time Networks, *Advances in Complex Systems*, Dec.,2007, 10(4) :449 - 461

#### 5) **others**

[C13] Jianwei Zhang, Weikai Xu, **Lin Wang**, A New Simulation Model Based on EESM for VANETs, Proc.NTMS2014/IEEE,Mar.30th to April 2th, 2014, Dubai.

[C14]Guanghai Liu, Hongliang Li, Wei Chen, Mingzhen Wang, and **Lin Wang**, Parallel-Filtering Based Equalization of OFDM over Doubly Selective Channels, Globecom 2010/IEEE, 6-10th, Dec., Miami, USA.

**[Book1] Lin Wang**, Weikai Xu, Principle and its Applications of Approaching Capacity Channel Encoder and Decoder, Press of People Post, 2007 (in Chinese)

Impact statistics (citation): Google 1305 (from all papers and books)/Web of Science 1155 and IEEE Journal 550 (from 50 SCI papers)/H index: 14

## **B. China Patents**

[1]**Lin Wang**, Hongyu Zhang, Invention Patent: One Chaotic Interleaver Method, No: ZL 01107339.X, Authorization Time: 08/18/2004

[2]Hongyu Zhang, **Lin Wang**, Invention Patent: Random Spreading Coded Modulation Technique Approaching Shannon Limit, No: ZL 01108568.1, Authorization Time: 09/08/2004

[3]**Lin Wang**, Juebang Yu, Neng Nie, and others, Invention Patent: Address Codes Method of Chaotic Spreading Spectrum in CDMA systems, No: ZL 00113085.4, Authorization Time:.09/28/2005

[4]Dongfu Xie,Weikai Xu, **Lin Wang**, and others, Practical Patent: Wireless Multi Media Game Systems in Home, No:200720009025.3, Authorization Time: 06/13/2008.

[5]**Lin Wang**, Yong Li, Weikai Xu, Gang Chen, Invention Patent: Decoding Method Based on PEG for Q-ary LDPC Codes, No: ZL200510057105.1, Authorization Time: 10/25/2008.

[6]**Lin Wang**, Dongfu Xie, Weikai Xu, and others, Invention Patent: Decoding

Implementation Based on Pipeline for LDPC Codes, No: ZL200710092476.2, Authorization Time: 02/24/2010

[7]Dongfu Xie, **Lin Wang**, Min Xiao, etc., Invention Patent: Decoding Implementation Based on Routing Technique for LDPC Codes”, No:200710092500.2, Authorization Time: 07/07/2010

[8]Wenjun Zhang, Jianwen Zhang, Liming Chen, Dongfu Xie, **Lin Wang**, Invention Patent: The Encoder and Its Design Based on One Structured LDPC Codes, No:200810071128.1, Authorization Time: 01/27/2010

[9]Pingping Chen, **Lin Wang**, Dongfu Xie, One Kind 5 Bits of Quantified Methods Available for Decoding of LDPC Codes, No. 201010186626.8, Authorization Time: 05/09/2012.

[10]Long Kong, Zhexin Xu, Shuai Gong, **Lin Wang**, Weikai Xu, A Traffic Flow Measurement Device and Method based on Ultra-Wideband Chaos Pulses, No: 201110296698.2, Authorization Time: 25/12/2013.

[11]Weikai Xu, **Lin Wang**, Yong Li, Gang Chen, A code-shifted Differential Chaos Shift Keying Modulation and Demodulation Method, No: 201010527234.3, Authorization Time: 10/10/2012.

[12] **Lin Wang**, Yin You, Min Xiao, Rate Compatible Coding of MET-LDPC Codes, No.201110094780.7, Authorization Time: 17/04/2013.

[13]Yibo Lyv, **Lin Wang**, Shaohua Hong, A reliability-wise belief propagation decoding method for low density parity check codes, No:20160551321.X, pending

[14]Qiwang Chen, Lin Wang, Shaohua Hong, The Construction Method of Joint Source-Channel Coding Matrix based on Protograph LDPC Codes, No. 2016090601261710, pending

## **5. Professional or IEEE Activities and Honors**

### **IEEE Society: IT, CAS, COMM.**

Senior Member, IEEE since 2009; Member, IEEE since 2003; Student member, IEEE since 1999

**Exemplary Reviewer** for IEEE Trans.on Communications in 2015(<2%)

Reviewer for Mathematical Reviews in AMS since 2013

**Reviewer for the promotion of Professor** in Electrical and Computer Engineering, University of Victoria, Canada in 2012

**Yici He Chair Professor Award** in Xiamen University, 2016(RMB8,000)

**Bendong Sa Chair Professor Award** in Xiamen University, 2012(RMB10,000)

Best Paper Award, ICCAS 2005/IEEE, 23-27<sup>th</sup>, May, 2005, Hong Kong, China, New Century Excellent Talents, Ministry of Education in China, 2005

Key Talents in Xiamen City Government, 2004

Excellent Teacher Award by Chongqing City Government, 2003

### **A. Editorship**

**Editor**, Acta Electronica Sinica, Jan,2011 to present (in Chinese)

**Editor**, Chinese Journal of Electronics, Jan. 2011 to present

**Editor**, Journal of Electronics and Information Technology, Jan.2014 to Dec.2017 (in Chinese)

**Guest Associate Editor** (GAE) , International Journal of Bifurcation and Chaos (IJBC), 1<sup>st</sup> Jan., 2010 to 31<sup>st</sup> Dec., 2011

### ***B. Inviting Talk***

- [1] Signal Design and Coding of Short Range Communication for Enabling Wireless Communications, 14-15<sup>th</sup>, Jan.2016, Sun Yat-sen University, China
- [2]Progress on Signal Design and Coding of Short Range Communication for WNS, Sino-Japan workshop on the Next Generation Mobile Communication Technology and Application 2015, Nov.9-10<sup>th</sup>, 2015, Xiamen, China
- [3]Progress in Source-channel Coding Based on DP\_LDPC Codes, 16<sup>th</sup>,Dec, 2014, ECE, Texas A & M University, USA
- [4]The New Progress on Joint Source and Channel Coding Based on Protograph Double LDPC Codes, 4<sup>th</sup> of Sept.,2014, University of Western Australia, Sydney, Australia
- [5]Chaotic Modulation Technique for UWB over E-HealthCare Environments, 21<sup>st</sup>, Mar, 2014, University of Electronic Science and Technology of China, Chengdu, China
- [6] Joint Source and Channel Coding Based on Protograph Double LDPC Codes, 16<sup>th</sup>., Mar.2014, Chongqing University of Post & Telecomm., Chongqing, China
- [7] Wireless Communication for E-Healthcare Environments, 28<sup>th</sup>,Sept. to 1<sup>st</sup> Oct, 2012, University of Western Australia, Sydney, Australia
- [8]Optimizing Design of Protograph LDPC Codes over Partial Response Channel, Nov.25-27, 2012, Shanghai Jiaotong University.
- [9] Robust Wireless Transmitting Techniques over E-Healthcare Environments, 22<sup>th</sup>, Mar.in 2012, University of Malta, Malta
- [10] Chaotic Modulation Technique: Principle and Its Applications, 28<sup>th</sup>, Sept. 2008, Chongqing University of Post & Telecomm., Chongqing, China

### ***C. Service for International Symposiums:***

- TPC Co-chairs, ISCIT 2017/IEEE, Oct., Australia
- Trackchair on Cognitive Radio, VTC 2017 Spring/IEEE, 3-7<sup>th</sup>, June, Australia
- TPC member, ISMICT2017/IEEE, Feb.6-8<sup>th</sup>, Lisbon, Portugal
- TPC member, WPMC2016/IEEE, Nov.13-16<sup>th</sup>, Shenzhen, China
- TPC member, PIMRC2016/IEEE, Sept.04<sup>th</sup> to Sept.07<sup>th</sup> , Valencia, Spanish
- TPC member, WCICA2016/IEEE, June 12-17<sup>th</sup>, 2016, Guilin, China
- TPC member, PIMRC2015/IEEE, Aug.30<sup>th</sup> to Sept.2<sup>nd</sup> , Hong Kong
- TPC member, ICUWB2015/IEEE, Oct.4-7<sup>th</sup>, Montreal, Canada
- TPC member, ISMICT2015/IEEE, Mar.24-26<sup>th</sup>, Kamakura,Japan
- TPC member, IUCC2014/IEEE, Dec.19-21<sup>th</sup>, Chengdu, China
- TP Co-Chairs, ISCIT2014/IEEE, Sept 24-26<sup>th</sup>, 2014, Incheon, Korea
- TPC member of PIMRC2014/IEEE, 2-5<sup>th</sup>, Sept., 2014, Washington, DC, USA
- TPC member of ICUWB/IEEE, 1-3<sup>rd</sup>, Sept., 2014, Paris, France
- TPC member of WPMC2014/IEEE, 7-10<sup>th</sup>, Sept., 2014, Sydney, Australia
- TPC member of ISMICT2014/IEEE, 2-4<sup>th</sup>, April, 2014, Florence, Italy

TPC member of ICUWB 2013/IEEE, 15-18<sup>th</sup>, Sept., 2013, Sydney, Australia  
Publicity Chairs, ISCIT 2013/IEEE, 4-6<sup>th</sup>, Sept., 2013, Samui Island, Thailand  
General Chairs, ISNAS 2012/IEEE, June28-30, 2012, Xiamen, China  
Session Chair, ISCIT2012/IEEE, Oct2-5, 2012, Gold Coast, Australia  
TPC member, 13<sup>th</sup> IEEE/ICCT, Sept.25-28, 2011, Jinan, Shandong, China  
TPC member, ISPACS 2010/IEEE, Sept.23 to 25, 2010, Chengdu, China  
TPC member, 10<sup>th</sup> CIT/IEEE, 29<sup>th</sup> June to 1<sup>st</sup> July, 2010, Bradford, UK  
TPC Member (ISCIT/IEEE, Sep.28-30, 2009, Incheon, Korea)  
TPC Co-Chair(ICCyberC 2009/IEEE, Oct.10-12<sup>th</sup>, 2009, Zhang JiaJie, China)  
Orgnizer of 12<sup>th</sup> North-East Asia Symposium on Nano, Information Technology and Reliability, May 23-24<sup>th</sup>, 2008, Xiamen University, China (IEEE Seoul Section)  
TPC Co-Chair (ICCCAS 2008/IEEE, May 25-27, 2008, Xiamen, China)  
TPC Member (ICCCAS 2007/IEEE, July 11-13, 2007, Fukuoka, Japan)  
TPC Member (ICCCAS 2006/IEEE, June 25-28, 2006, Guilin, China)  
Session Chair (ISPACS 2007/IEEE, Nov.8-Dec.1,2007, Xiamen, China)  
Session Chair (ICSP 2006/IEEE, Nov.16-20, 2006, Guilin, China)  
Session Chair (MAPE 2005/IEEE, Aug.8-12, 2005, Beijing, China)  
Session Chair (ICCCAS 2004/IEEE, June 27-29, 2004, Chengdu, China)  
Session Chair (ISPACS 2004/IEEE, Dec.18-19, 2004, Seoul, Korea)

***D. Academic Visiting for short term or the occasion:***

ECE, University of Kentucky, 16-21<sup>st</sup>, Dec, 2014  
ECE, Texas A&M University at College Station, 14-16<sup>th</sup>, Dec, 2014  
ECE, University of California at Davis, 1<sup>st</sup>, Jan to 30<sup>th</sup>, July, 2013  
ECE, University of California at Berkeley, 9<sup>th</sup>, June, 2013  
EE, University of Washington at Seattle, 13<sup>th</sup>, Mar, 2013  
Mathematics Department, California Institute of Technology, Pasadena, 9<sup>th</sup>, Mar, 2013  
School of Computing, Engineering and Mathematics, University of Western Sydney during Sep 28, 2012- Oct 1, 2012  
Faculty of Information Science and Tech, Malta University, 22-23<sup>th</sup>, Mar, 2012  
ECE, UIUC, USA, 27-28<sup>th</sup>, June, 2011  
ECE, MIT, USA, 25<sup>th</sup>, June, 2011  
EE, Stanford University, USA, 24<sup>th</sup>, June, 2011  
EE, City University of Hong Kong, 15<sup>th</sup>, Aug., 2010  
National Key Lab of Semiconductor Research, Hanyang University, Seoul, Korean, 2008.8.8-8.10  
ITRC-UWB Research Center, Inhan University, Korean, 2008.8.3-8.7  
IPS, Waseda University, Kitakyushu, Japan, 2007.4.5  
Ritsumeikan Asia Pacific University, Japan, 2007.4.4  
National Cheng Kung University, Taiwan, 2007.1.3  
National Sun Yat-Sen University, Taiwan, 2007.1.4  
National Chung Cheng University, Taiwan, 2007.1.6  
National Tsing Hua University, Taiwan, 2007.1.9  
National Chiao Tung University, Taiwan, 2007.1.9  
National Taiwan University, Taiwan, 2007.1.10

Inha University, South Korean, 2006.2.18  
Dept. of EE, City U of Hong Kong, 2003.1.4-4.6  
**E. Industrial Visiting**  
Cisco, Dallas, TX, USA, 2013.6.23  
Ericsson, Dallas, TX, USA, 2013.6.23  
HP, San Diego, CA, USA, 2013. 6.21  
Intel, Phoenix, AZ, USA, 2013.4.16  
Hisilicon, Shenzhen, China, 2007.10.13  
Todraw Co., Ltd Japan, 2007.4.2  
D-clue Co., Ltd, Japan, 2007.4.3  
ELIA Co., Ltd, Japan, 2007.4.4  
Samsung Group, Seoul, South Korean, 2006.2.20  
LG Corporation, Seoul, South Korean, 2006.2.20  
Mazda Motor Corporation, Hiroshima, Japan, 2004.7.28  
ZTE Corporation, Shenzhen, China, 2002.8.16

## 6. Current Research Fields and Group

### A. Research Fields:

**Design, analysis**, as well as **implementation** of Physical layer and cross-layers design through information theory (joint source and channel coding, physical network coding and compressed sensing) for wireless communications (such as, IEEE802.15.4a and IEEE 802.15.6) since 1997 and storage systems since 2007

### B. Research Group:

**Director** of Lab of Wideband Wireless Communication Systems (WWCS): **Lin Wang**

**Member:** Weikai Xu (Associate Professor), Shaohua Hong (Associate Professor)

**Ph.D students** (6): Tingting Huang (2017); Wei Hu (2017); Qiwang Chen(2018); Chen Chen, Guixian Cheng(2019); Sanya Liu(2020)

**MS students** (20): Jia Zhan, Xinyuan Yu, Dongyuan Tang, Yaofei Song, Wu Lin, Yanchun He, Chiang Chen(2017); Chenglong Zhou, Zijie Chen, Mingyang Zhen, Linfei Ye, Fang Xia, Qi Zhou, Yunsheng Tan(2018); Hao Fu, Bangquan Zhang, Yuyang Zhang, Menglei Chen, Liangqian Chen, Fulin Li, Wenzhuo Ma (2019)

### C. Ph. Dissertations

1) Weikai Xu: Key Technology in Differential Chaos Shift Keying, 2011

offer: Assistant Professor, Xiamen University

2) Min Xiao: Design for Rate-compatible LDPC Codes, 2011

offer: Assistant Professor, Xiamen Institute of Technology

3) Dongfu Xie: Algorithm and Hardware Implementation of Channel Coding for Very Low BER Test, 2011

offer: Assistant Professor, Jiaying University

4) Guangfu Wu: Binary Linear Codes Based on Matroid Theory, 2012



offer: Assistant Professor, Jiangxi University of Technology

5) Zhixin Xu: Analysis, Design and Implementation of Delay Line for Transmitted-Reference Ultra-Wideband Systems, 2012

offer unit: Assistant Professor, Fujian Normal University

6) Yong Li: Algebra Soft Decoding of QR Codes and Linear Program Decoding for MIMO OFDM, 2012

offer: Assistant Professor, Chongqing University of Post & Telecomm

7) Pingping Chen: Key Technology of Chaotic Modulations and Codes for Short Range Communications, 2012

offer: Postdoc, Chinese University of Hong Kong, Hong Kong

8) Shaoyuan Chen: Synchronization Algorithm and Multi Antenna Technique for Internet of Things, 2013

offer: Engineer, New Mainland Tech. Group, China

9) Yi Fang: Optimizing Design and Analysis of Protograph LDPC Codes, 2013

offer: Postdoc, Nanyang University of Technology, Singapore

10) Guofa Cai: Transmission Characteristics of Differential Chaos Shift Keying Communication Systems, 2015

offer: Postdoc, Guangdong University of Technology, China

11) Yibo Lyu: Research on Key Techniques of Digital Iterative Receiver for M-ary Differential Chaos Shift Keying Modulation Systems, 2016

offer: Assistant Professor in Chongqing University of Post & Telecomm, China

D. MS Thesis (representatives from 65)

1) Jiguang He: Joint Source-channel Coding Based on Double Protograph LDPC Codes, 2013

Offer: Ph.D scholarship in University of Oulu, Finland

2) Long Kong: Research of Physical-layer Network Coding Based on Two Way Relay Channel, 2013

Offer: Ph.D scholarship in ETS, University of Quebec, Canada

3) Huihui Wu: The Impacts of Source Statistics on Joint Source-Channel Coding over Standard & Non-standard Channels, 2014

Offer: Ph.D Scholarship in McMaster University, Canada

4) Jianwen Zhang: Performance of FH Systems Based on Different LDPC Codes, 2009

Offer: Ph.D Scholarship in EE, City University of Hong Kong

E. BS Thesis (representatives from 75)

1) Wutong Gao (offer, MS Student, ECE, UIUC, USA, 2016)

2) Xueyang Peng (offer: MS student, ECE, Univ. of Hong Kong, 2016)

3) Yishan Xu (offer: MS student, ECE, Univ. of New South Wales, Australia, 2016)

4) DeChao Hu (offer: MS student, ECE, Univ. of New South Wales, Australia, 2016)

5) Guochen Wang (offer: MS student, ECE, Ohio State Univ., USA, 2015)

6) Shuting Xi (offer: MS Student, CE, Carnegie Mellon Univ., USA, 2015)

7) Junting Zhang (offer: Ph.D Scholarship, CE, Univ. of Southern California, USA, 2015)

8) Xiaoyan Han ( offer: MS Student, ECE, Ohio State Univ., USA, 2014)

- 9) Xiang Duan (offer: MS student, ECE, NYU, USA, 2014)
  - 10) Qi Zhang (offer: MS student, ECE, Univ. of Ottawa, Canada 2013)
  - 11) Zhiyan Wang (offer: Ph.D Scholarship, INC, Chinese Univ. of HK, 2012)
  - 12) Qinlin Luo (offer: Ph.D Scholarship, ECE, University of Surrey, UK, 2002)
- F. Teaching Courses (completed)
- 1) Probability and Statistics (4<sup>th</sup> edition by M. H. DeGroot, M. J. Schervish undergraduate students)
  - 2) Signal and Systems (2<sup>nd</sup> edition by A.V. Oppenheim and A.S. Willsky, undergraduate students)
  - 3) Random Processes (by R.M. Gray and L.D. Davisson, MS students)
  - 4) Wireless Communications (by Andrea Gold Smith, MS students)
  - 5) Error Control Coding (2<sup>nd</sup> edition by Shu Lin, Daniel J. Costello, MS students)
  - 6) Element of Information Theory (2<sup>nd</sup> edition by T.M. Cover and J.A. Thomas, Ph.D and MS students)
- G. Examiners for Chinese Ph.D Thesis from 2007 to present
- 1) Three dissertations from Zhejiang University
  - 2) Two dissertations from Shandong University
  - 3) Ten dissertations from Sichuan University
  - 4) Sixteen dissertations from Chongqing University
  - 5) Two dissertations from Southwestern Jiaotong University
- H. Examiners for oversea Ph.D Thesis from 2015 to present
- 1) Title: Ultra-Wideband Wireless Body Area Network Design and Optimization  
Macquarie University, Australia, Aug.2015
  - 2) Differential Chaos Shift Keying Modulation for Cooperative and Spatial Diversity  
Communication Systems  
Indian Institute of Technology Guwahati, Indian, Jan.2016

## **7. International Cooperation Partners (as referee)**

- a. Chair Prof. Guanrong Chen, IEEE Fellow, Member of the Academia European, EE, City Univ. of Hong Kong, HK, SAR China, Cooperation area: Chaotic communications since 2003
- b. Prof. G. Kolumban, IEEE Fellow, Faculty of Information Technology, Pazmany Peter Catholic University, Hungary, Cooperation area: Chaotic communications since 2010
- c. Chair Prof. Trieu-Kien Truong, IEEE Life Fellow, ECE, I-Shou University, Taiwan, Cooperation area: Channel coding and Source coding since 2008
- d. Chair Prof. Zhi Ding, IEEE Fellow, ECE, University of California at Davis, USA, Cooperation area: wireless communication system and network since 2011
- e. Prof. Francis C. M. Lau, IET Fellow, PolyTech University of Hong Kong, HK, SAR, China, Cooperation area: Channel Coding and Chaotic Communications since 2011
- f. Prof. Kyung Sup Kwak, ICE, Inha University, Incheon, Korean, Cooperation area: UWB Transmission since 2009
- g. Prof. Zixiang Xiong, IEEE Fellow, ECE, Texas A&M University, USA,

Cooperation area: Joint Source-Channel Coding & Decoding since 2014

- h. Prof. Eryk Dutkiewicz, Head of Computing and Communications, University of Technology, Sydney, Australia, Cooperation area: UWB and its applications since 2013
- i. Prof. Xiaojing Huang, IEEE Senior Member, University of Technology, Sydney, Australia, Cooperation area: UWB and its applications since 2015
- j. Prof. Georges Kaddoum, ETS, University of Quebec, Canada, Cooperation area: Chaotic Communications since 2016

## **8. Leadership in Research and Development Projects**

### **Completed projects by Dr.Lin Wang**

- 1) National Science Foundation of China (NSFC):Optimizing Design and Analysis of Multi-edge LDPC Codes over Perpendicular Magnetic Record Channels, 2010.1-2012.12, RMB310,000 (PI:Prof. Lin Wang);
- 2) Shenzhen City Science and Technology Key Project: Key Technology on Traffic Measure Systems Based on Chaotic UWB Pulse, 2011.3-2015.3, RMB 200,000(PI: Prof. Lin Wang)
- 3) Chongqing City Science and Technology Key Project: Models for Traffic Measure Systems Based on Chaotic UWB Pulse, 2009.9-2011.8, RMB 100,000(PI: Prof. Lin Wang)
- 4) National Science Foundation (NSF) of Fujian Province: Design and Analysis for Rate-Compatible Multi Edge LDPC Code, 2009.1-2011.12, RMB70,000 (PI: Prof. Lin Wang)
- 5)Fujian Province Science and Technology Key Project: Non-binary LDPC Coding and Decoding for Satellite Communications and Their Implementations, 2006.7-2008.12, RMB 150,000(PI.Pro.Lin Wang)
- 6) Strategic Scientist Plan (New Century Excellent Talents) Project from Ministry of Educations in China:Non-binary LDPC Codes Used Channel Coding and Decoding for Next Generation Satellite Communications,2005.1-2007.12,RMB500,000(PI: Prof. Lin Wang)
- 7) Supported by Gallop Company in Chongqing: Design and FPGA Implementation for Structured LDPC Codes for wireless communications, 2007.3-2010.3, RMB 200,000(PI: Prof.Lin Wang)
- 8) Supported by City University of Hong Kong/Tsinghua University: Chaotic Modulations and implementation/IDMA air access, 2004.1-2006.12/2007.1-2009.12, RMB150,000(PI: Prof. Lin Wang)
- 9) NSFC: Optimizing Design and Analysis for Wovern Codes as Turbo-like Codes, 2003.1-2005.12, RMB220,000(PI: Prof. Lin Wang)
- 10) Strategic Scientist Plan (National 863) Project from Ministry of Science and Technology in China: LDPC Codes for Third Generation Mobile Communications, 2001.12-2005.4, RMB300,000(PI: Prof. Lin Wang)
- 11) Future Strategic Scientist Plan ( Key R&D ) Project from Ministry of Industry and Information in China: Design of Spreading Spectrum Sequences for the Mobile of

Third Generation, 1998.4-2001.4, RMB800,000(PI: Lin Wang)

### **Investigating projects by Prof. Lin Wang**

1)NSFC: Key Techniques for Chaotic Spatial Modulation Based UWB System under Multi-Relay Transmission Mode, No.61671395, 2017.1-2020.12, RMB 580,000 (PI: Prof. Lin Wang)

2)NSFC: The physical-layer key techniques for medical image transmissions based on UWB system, No.61271241, 2013.1-2016.12, RMB760,000 (PI: Prof. Lin Wang)

3)European Union-FP7: Cognitive Network Enabled Transnational Proactive Healthcare, No.294923, 2012.1-2016.12, RMB450,000 (*CoNHealth*, PI: Prof. Lin Wang)

## **9. Leadership in Administration as associate dean in the SIST**

1)Establishing Ph.D Program in Electronic Engineering as one of leading professors in 2005, becoming associate Dean for research during 2004-2008 and for graduate affairs during 2008-2012, and obtaining the funds (RMB 350,000) from Fujian Province to set up the criterions of Ph.D in Telecommunications during 2008.12-2012.12

2)Establishing the National Exemplary Center of Experimental Education on Electronic Engineering of China in the SIST and capturing **RMB22,000,000** through competitive applications from Ministry of Finance in China during 2008-2012 as Associate Dean for undergraduate experiments

3)The subject of Engineering, Technology, and Computer Science in Xiamen University has been ranked Global Top 150-200 since 2012 at the ARWU by Shanghai Jiaoto University.