Stanford



# John M. Cioffi

Hitachi America Professor in the School of Engineering, Emeritus

Electrical Engineering

### CONTACT INFORMATION


- **Administrative Contact**

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## Bio

### BIO

John M. Cioffi teaches Stanford's graduate electrical engineering course sequence in digital communications, part-time as recalled emeritus presently, from 1986 to the present. Cioffi's research interests are in the theory of transmitting the highest possible data rates on a number of different communications channels, many of which efforts spun out of Stanford through he and/or his many former PhD students to companies, most notably including the basic designed globally used 500 million DSL connections. Cioffi also oversaw the prototype developments for the worlds first cable modem and digital-audio broadcast systems. Cioffi pioneering the use of remote management algorithms to improve (over the internet or cloud) both wireline (DSL) and wireless (Wi-Fi) physical-layer transmission performance, an area often known as Dynamic Spectrum Management or Dynamic Line Management. Cioffi is co-inventor on basic patents for vectored DSL transmission and optimized MIMO wireless transmission. In his early career, Cioffi developed the worlds first full-duplex voiceband data modem while at Bell Laboratories, and the worlds first adaptively equalized disk read channel while at IBM. His courses and research projects over the years center on the area of multiuser transmission methods.

### ACADEMIC APPOINTMENTS

- Professor Emeritus-Hourly, Electrical Engineering

### ADMINISTRATIVE APPOINTMENTS

- Chief Executive Officer, ASSIA INc., (2003-2022)
- Chief Technical Officer & VP, Engineering, Amati Communications Corp, (1989-1997)
- Research Staff Member, IBM Research, (1984-1986)
- Member Technical Staff, AT&T Bell Laboratories, (1978-1984)

### HONORS AND AWARDS

- US National Academy of Inventors, United States Patent Officer and NAI (2025)
- Fellow, Royal Society of Edinburgh (2024)
- National Medal of Technology & Innovation, US President Joseph Biden (2023)
- Women in Communications Engineering Mentoring Award, IEEE (2019)

- CTA Hall of Fame, Consumer Technology Association (2018)
- Hall of Fame Member, Internet Society (2014)
- Kirchmayer Graduate Teaching Award, IEEE (2014)
- Lifetime Achievement Award, Broadband World Forum (2014)
- Armstrong Communications Award, IEEE (2013)
- 2010 Communication Innovations Award, Economist Magazine (2010)
- Alexander Graham Bell Medal, IEEE (2010)
- Honorary Doctorate, University of Edinburgh (2010)
- Member, UK Royal Society of Engineering (2009)
- International Marconi Fellow, Marconi Society (2006)
- Kobayashi Award, IEEE (2001)
- Member, US National Academy of Engineering (2001)
- JJ Thomson Medal (2000), IEE (UK) (2000)
- Millennium Medal, IEEE (2000)
- Fellow, IEEE (1996)
- T1 Outstanding Achievement Award, American National Standards Institute (1995)
- Best Paper Awards, IEEE Communications Magazine (1991 and 2007)
- Presidential Investigator (1987-1992), NSF and US President R. Regan (1987-1992)
- Harvey Jordan Award, Valedictorian, University of Illinois Engineering (1978)

## BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Vice Chair, Board of Directors, Marconi Society (2008 - present)
- Member, Board of Directors, Alto Beam (2007 - 2021)
- Chair, Board of Directors, PhyTunes inc. (2020 - present)
- Chairman and CEO, ASSIA Inc (2003 - present)
- Member, Board of Directors, Marvell Semiconductor (1999 - 2006)
- Member, Board of Directors, Amati Communications Corp (1989 - 1998)
- Chief Technical Officer & VP, Engineering, Amati Communications Corp (1989 - 1998)
- Member, Board of Directors, Vector Silicon Inc. (2007 - 2011)
- Member, Board of Directors, Teranetics Corp. (2002 - 2009)
- Member, Board of Directors, Tinoq Inc. (2015 - present)
- Member, Board of Directors, Teknovus (2000 - 2005)
- Member, Board of Directors, Coppercom (1999 - 2003)
- Member, Board of Directors, ITEX (1999 - 2003)

## PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

## PROFESSIONAL EDUCATION

- PhD, Stanford , EE (1984)
- MSEE, Stanford , EE (1979)

- BSEE, University of Illinois , EE (1978)

## PATENTS

- John Cioffi et al.. "United States Patent 10,530,695 Systems and methods for traffic aggregation on multiple WAN backhauls and multiple distinct LAN networks", ASSIA Inc., Jan 7, 2020
- Ginis, Georgios; Yu, Wei; Zeng; Chaohuang; Cioffi; John M.. "United States Patent 10,404,300 Dynamic digital communication system contro", Leland Stanford Junior University, Sep 3, 2019
- Kerpez, Kenneth J.; Cioffi; John M.; Goldburg, Marc. "United States Patent 10,263,866 DSL neighborhood diagnostics", ASSIA Inc., Apr 16, 2019
- John Cioffi, Wonjong Rhee, George Ginis, Mark Brady, Peter Silverman. "United States Patent 10,050,725 Method and apparatus for DSL performance enhancement in a DSL network", Adaptive Spectrum and Signal Alignment, Inc., Aug 14, 2018
- John M. Cioffi, Mark B. Flowers, Mark Brady, Ardavan Maleki Tehrani, Marc Goldburg, Georgios Ginis, Peter Silverman. "United States Patent 9,941,928 Systems, methods, and apparatuses for implementing a DSL system", Adaptive Spectrum and Signal Alignment, Inc., Apr 10, 2018
- John Cioffi, Georgios Ginis, Wei Yu, Chaohuang Zeng. "United States Patent 9,843,348 Dynamic digital communication system control", Stanford University, Dec 12, 2017
- John Cioffi, Mark B. Flowers, Mark Mallory, Mark Brady, Mehdi Mohseni. "United States Patent 9,819,388 DSL Noise Cancellation", Adaptive Spectrum and Signal Alignment, Inc., Nov 14, 2017
- John Cioffi, Wonjong Rhee, Georgios Ginis, Sumanth Jagannathan. "United States Patent 9,391,744 Method and apparatus for analyzing and mitigating noise in a digital subscriber line", Adaptive Spectrum and Signal Alignment, Inc., Jul 12, 2016
- John Cioffi, Wonjong Rhee, Georgios Ginis, Sumanth Jagannathan, Peter Silverman, Mehdi Mohseni. "United States Patent 9,203,724 DSL system", Adaptive Spectrum and Signal Alignment, Inc., Dec 1, 2015
- Wonjong Rhee, John M. Cioffi, Georgios Ginis, Peter Silverman. "United States Patent 9,178,777 User-preference-based DSL system", Adaptive Spectrum and Signal Alignment, Inc., Nov 3, 2015
- John Cioffi. "United States Patent 9,160,385 Dynamic digital communication system control", Stanford University, Oct 13, 2015
- John M. Cioffi, Wonjong Rhee, Bin Lee, Seong Tak Chung, Georgis Ginis. "United States Patent 9,071,534 DSL system estimation", Adaptive Spectrum and Signal Alignment, Inc., Jun 30, 2015
- Wonjong Rhee, John Cioffi, Peter Silverman, Georgios Ginis. "United States Patent 8,972,549 User-preference-based DSL system", Adaptive Spectrum and Signal Alignment, Inc., Mar 3, 2015
- Wonjong Rhee, John M. Cioffi, Georgios Ginis, Peter Silverman. "United States Patent 8,948,026 User-preference-based DSL system", Adaptive Spectrum and Signal Alignment, Inc., Feb 3, 2015
- John Cioffi. "United States Patent 9,369,232 Apparatus, systems and methods for impulse noise detection and mitigation", Chan Soo Hwang, Mithat Dogan, John M. Cioffi, Mark B. Flowers, Sina Barkeshli, Nov 4, 2014
- John Cioffi, George Ginis, Sumanth Jagannathan. "United States Patent 8,842,527 High speed multiple user multiple loop DSL system", Adaptive Spectrum and Signal Alignment, Inc., Sep 23, 2014
- John Cioffi, George Ginis, Sumanth Jagannathan. "United States Patent 8,842,527 High speed multiple user multiple loop DSL system", Adaptive Spectrum and Signal Alignment, Inc., Sep 23, 2014
- John M. Cioffi, Wonjong Rhee, Bin Lee, Georgis Ginis. "United States Patent 8,761,348 DSL system training", Adaptive Spectrum and Signal Alignment, Inc., Jun 24, 2014
- Georgios Ginis, Wei Yu, Chaohuang Zeng, and John M. Cioffi. "United States Patent 8,681,897 Dynamic digital communication system control", Stanford University, Mar 25, 2014
- John M. Cioffi, George Ginis, Peter J. Silverman, Bin Lee, Richard Dennis Hart. "United States Patent 8,644,169 Methods and apparatus to perform line testing at customer premises", Adaptive Spectrum and Signal Alignment, Inc. and AT&T Intellectual Property I, L.P., Feb 4, 2014
- John M. Cioffi, Wonjong Rhee, Georgis Ginis, Mark Brady, Peter J. Silverman. "United States Patent 8,483,369 DSL System training", Jul 9, 2013
- John Cioffi, Wonjong Rhee, George Ginis, Sumanth Jagannathan. "United States Patent 8,428,225 Method and apparatus for analyzing and mitigating noise in a digital subscriber line", Adaptive Spectrum and Signal Alignment, Inc., Apr 23, 2013
- Mark B. Flowers, John M. Cioffi, Seong Taek Chung. "United States Patent 8,363,788 DSL ring signal compatibility", Adaptive Spectrum and Signal Alignment, Inc., Jan 29, 2013
- John M. Cioffi, Bin Lee, Wonjong Rhee, Georgios Ginis. "United States Patent 8,310,914 Phantom use in DSL system", Adaptive Spectrum and Signal Alignment, Inc., Nov 13, 2012
- Georgios Ginis, Wei Yu, Chaohuang Zeng, John Cioffi. "United States Patent 8,081,704 Dynamic digital communication system control", Stanford University, Dec 20, 2011
- Wonjong Rhee, John Cioffi, BinLee, Iker Almandoz, JohnM. Cioffi, Georgios Ginis. "United States Patent 8,073,135 Binder identification", Adaptive Spectrum and Signal Alignment, Inc., Dec 6, 2011

- John Cioffi and Avneesh Agrawal. "United States Patent 8064325 Concurrent frequency-sharing multi-user communication system with rate allocation approach", Stanford University, Nov 22, 2011
- Wonjong Rhee, John Cioffi. "United States Patent 8,045,629 DSL data collection system", Adaptive Spectrum and Signal Alignment, Inc., Oct 25, 2011
- John Cioffi, Wonjong Rhee, Georgios Ginis, Taek Seong Chung. "United States Patent 8,031,761 Adaptive margin and band control", Adaptive Spectrum and Signal Alignment, Inc., Oct 4, 2011
- John Cioffi, Wonjong Rhee, Georgios Ginis, Sumanth Jagannathan, Peter Silverman, Mehdi Mohseni. "United States Patent 8,009,665 DSL system training", Adaptive Spectrum and Signal Alignment, Inc., Aug 30, 2011
- John Cioffi, Wonjong Rhee, Bin Lee, Georgios Ginis. "United States Patent 7,991,122 DSL system training", Adaptive Spectrum and Signal Alignment, Inc., Aug 2, 2011
- John Cioffi, Wonjong Rhee, Bin Lee, Seong Taek Chung, Georgios Ginis. "United States Patent 7,924,736 DSL system estimation", Adaptive Spectrum and Signal Alignment, Inc., Apr 12, 2011
- John Cioffi, Wonjong Rhee, Bin Lee, Iker Almandoz, George Gini. "United States Patent 7,881,438 Self-learning and self-adjusting DSL system", Adaptive Spectrum and Signal Alignment, Inc., Feb 1, 2011
- Wonjong Rhee, Iker Almandoz, John Cioffi, Bin Lee, Georgios Ginis. "United States Patent 7,852,952 DSL system loading and ordering", Adaptive Spectrum and Signal Alignment, Inc., Dec 14, 2010
- John Cioffi, Wonjong Rhee, George Ginis, Seong Taek Chung. "United States Patent 7,830,955 Adaptive margin and band control", Adaptive Spectrum and Signal Alignment, Inc., Nov 9, 2010
- John Cioffi, Wonjong Rhee, George Ginis. "United States Patent 7,817,745 Tonal Precoding", Adaptive Spectrum and Signal Alignment, Inc., Oct 19, 2010
- John Cioffi, Wonjong Rhee, Bin Lee, George Ginis. "United States Patent 7,813,420 Adaptive GDFE", Adaptive Spectrum and Signal Alignment, Inc., Oct 12, 2010
- Wonjong Rhee, Mark Brady, John Cioffi. "United States Patent 7,809,116 DSL system estimation including known DSL line scanning and bad splice detection capability", Adaptive Spectrum and Signal Alignment, Inc., Oct 5, 2010
- John Cioffi. "United States Patent 7,809,996 Adaptive FEC codeword management", Adaptive Spectrum and Signal Alignment, Inc., Oct 5, 2010
- John Cioffi, Iker Almandoz, Georgios Ginis. "United States Patent 7,774,398 Tonal rotors", Adaptive Spectrum and Signal Alignment, Inc., Aug 10, 2010
- John Cioffi. "United States Patent 7.773,497 Phantom use in DSL systems", Adaptive Spectrum and Signal Alignment, Inc., Aug 10, 2010
- John Cioffi, Wonjong Rheee. "United States Patent 7,711,530 DSL system estimation and parameter recommendation", Adaptive Spectrum and Signal Alignment, Inc., May 4, 2010
- John Cioffi, Georgios Ginis, Wei Yu, Chaohuang Zeng. "United States Patent 7,688,884 Vectored DSL nesting", Adaptive Spectrum and Signal Alignment, Inc., Mar 30, 2010
- Wonjong Rhee, John Cioffi, BinLee, Iker Almandoz, JohnM. Cioffi, Georgios Ginis, Thomas Sylke. "United States Patent 7,684,546 DSL system estimation and control", Adaptive Spectrum and Signal Alignment, Inc., Mar 23, 2010
- John Cioffi, Georgios Ginis, Wei Yu, Chaohuang Zeng. "United States Patent 7,657,818 Dynamic minimum-memory interleaving", Adaptive Spectrum and Signal Alignment, Inc., Feb 2, 2010
- John Cioffi. "United States Patent 7,639,596 High speed multiple loop DSL system", Adaptive Spectrum and Signal Alignment, Inc., Dec 29, 2009
- John Cioffi, Wonjong Rhee. "United States Patent 7,606,350 Incentive-based DSL system", Adaptive Spectrum and Signal Alignment, Inc., Oct 20, 2009
- Jungwon Lee, John Cioffi, Seong Taek Chung. "United States Patent 7,593,426 Bit rate and power allocation for multi-carrier communication systems", Stanford University, Sep 22, 2009
- John Cioffi. "United States Patent 7,593,458 FEXT determination system", Adaptive Spectrum and Signal Alignment, Inc., Sep 22, 2009
- John Cioffi. "United States Patent 7,573,943 Interference cancellation system", Adaptive Spectrum and Signal Alignment, Inc., Aug 11, 2009
- John Cioffi, Wonjong Rhee. "United States Patent 7,558,315 Adaptive margin and band control in digital subscriber line (DSL) systems", Adaptive Spectrum and Signal Alignment, Inc., Jul 7, 2009
- Wonjong Rhee, John Cioffi. "United States Patent 7,535,966 DSL data collection system", Adaptive Spectrum and Signal Alignment, Inc., May 19, 2009
- Wonjong Rhee, Iker Almandoz, John Cioffi. "United States Patent 7,460,588 Digital subscriber line (DSL) state and line profile control", Adaptive Spectrum and Signal Alignment, Inc., Dec 2, 2008
- John Cioffi. "United States Patent 7,428,669 Adaptive FEC codeword management", Adaptive Spectrum and Signal Alignment, Inc., Sep 23, 2008
- Kaxutomo Hasegawa, Georgios Ginis, Carlos Aldana, John M. Cioffi. "United States Patent 7,394,752 Joint reduction of NEXT and FEXT in xDSL systems", Stanford University, Jul 1, 2008

- John Cioffi, Wonjong Rhee. "United States Patent 7,302,379 DSL system estimation and parameter recommendation", Adaptive Spectrum and Signal Alignment, Inc., Nov 27, 2007
- Georgios Ginis, Wei Yu, Chaohuang Zeng, John Cioffi. "United States Patent 7,158,563 Dynamic digital communication system control", Stanford University, Jan 2, 2007
- John Cioffi, John A.C. Bingham, Krista Jacobsen. "United States Patent 7,110,370 Method and apparatus for coordinating multi-point to point communications in a multi-tone data transmission system", Texas Instruments, Sep 19, 2006
- John Cioffi, John A.C. Bingham, Krista Jacobsen. "United States Patent 7,079,549 Method and apparatus for coordinating multi-point to point communications in a multi-tone data transmission system", Texas Instruments, Jul 18, 2006
- John Cioffi, John A.C. Bingham, Krista Jacobsen. "United States Patent 7,068,678 Method and apparatus for coordinating multi-point to point communications in a multi-tone data transmission system", Texas Instruments, Jun 27, 2006
- Kok-Wui Cheong, Won-Joon Choi, Johnny Li-Shung Fan, Zining Wu, John M. Cioffi. "United States Patent 7,027,537 Iterative multi-user detection", Stanford University, Apr 11, 2006
- Chaohuang Zeng, Carlos Aldana, Atul Salvekar, John M. Cioffi. "United States Patent 6,990,196 Crosstalk identification in xDSL systems", Stanford University, Jan 24, 2006
- John Cioffi, John A.C. Bingham, Krista Jacobsen. "United States Patent 6,937,623 Method and apparatus for coordinating multi-point to point communications in a multi-tone data transmission system", Texas Instruments, Aug 30, 2005
- Louise Hoo, Atul Salvekar, Carlos Aldana, John M. Cioffi, Peter Chow, James Carlo. "United States Patent 6,829,307 Express bit swapping in a multicarrier transmission system", Texas Instruments and Stanford University, Dec 7, 2004
- Jose Tellado and John Cioffi. "United States Patent 6,512,797 Peak to average power ratio reduction", Stanford University, Jan 28, 2003
- John Cioffi, John A.C. Bingham, Krista Jacobsen. "United States Patent 6,473,438 Method and apparatus for coordinating multi-point to-point communications in a multi-tone data transmission system", Texas Instruments and Stanford University, Oct 29, 2002
- Jose Tellado and John M. Cioffi. "United States Patent 6,424,681 Peak to average power ratio reduction", Stanford University, Jul 23, 2002
- Jose Tellado, John Cioffi. "United States Patent 6,314,146 Peak to average power ratio reduction", Stanford University, Nov 6, 2001
- Richard D. Wesel , John Cioffi. "United States Patent 6,125,150 Transmission system using code designed for transmission with periodic interleaving", Stanford University, Sep 26, 2000
- John M. Cioffi, Mark P. Mallory, John A.C. Bingham. "United States Patent 5,995,567 Radio frequency noise canceller", Texas Instruments, Nov 30, 1999
- John Cioffi. "United States Patent 5,993,454 Multi-carrier data transmissions system using an overhead bus for synchronizing multiple remote units", Amati Communications Corp, Aug 3, 1999
- John Cioffi. "United States Patent 5,887,032 Method and apparatus for crosstalk cancellation", Amati Communications Corp, Mar 23, 1999
- John M. Cioffi, John A.C. Bingham, Mark P. Mallory,. "United States Patent 5,838,799 Digital sound broadcasting using a dedicated control channel", Amati Communications Corp, Nov 17, 1998
- John M. Cioffi, John A.C. Bingham, Mark P. Mallory,. "United States Patent 5,838,799 Digital sound broadcasting using a dedicated control channel", Amati Communications Corp, Nov 17, 1998
- Jacky S. Chow, John A.C. Bingham, Mark B. Flowers, John M. Cioffi. "United States Patent 5,787,113 Mitigating clipping and quantization effects in digital transmission systems", Amati Communications Corp, Jul 28, 1998
- Nicholas Zogakis, John Cioffi. "United States Patent 5,774,500 Multi-channel trellis shaper", Amati Communications Corp, Jan 30, 1998
- John Cioffi. "United States Patent 5,625,651 Discrete multi-tone data transmission system using an overhead bus for synchronizing multiple remote units", Amati Communications Corp, Apr 29, 1997
- Jacky S. Chow, John A.C. Bingham, Mark B. Flowers, John M. Cioffi. "United States Patent 5,623,513 Mitigating clipping and quantization effects in digital transmission systems", Amati Communications Corp, Apr 22, 1997
- John Cioffi, Po Tong, James Aslanis, Antoinette H. Gooch,. "United States Patent 5,596,604 Multicarrier modulation transmission system with variable delay", Amati Communications Corp, Jan 21, 1997
- John Cioffi. "United States Patent 5,519,731 ADSL compatible discrete multi-tone apparatus for mitigation of T1 noise", Amati Communications Corp, May 21, 1996
- Peter S. Chow , John M. Cioffi. "United States Patent 5,479,447 Method and apparatus for adaptive, variable bandwidth, high-speed data transmission of a multicarrier signal over digital subscriber lines", Stanford University, Dec 26, 1995
- Kevin D. Fisher, William L. Abbott, John M. Cioffi, Philip S. Bednarz. "United States Patent 5,430,661 Adaptive decision feedback equalizer apparatus for processing information stored on digital storage media", Stanford University, Jul 4, 1995
- Minnie Ho , John M. Cioffi. "United States Patent 5,317,596 Method and apparatus for echo cancellation with discrete multitone modulation", Stanford University, May 31, 1994

- Jacky S. Chow, John M. Cioffi. "United States Patent 5,285,474 Method for equalizing a multicarrier signal in a multicarrier communication system", Stanford University, Feb 8, 1994
- Huiling Lou, John Cioffi. "United States Patent 5,220,570 Programmable viterbi signal processor", Stanford University, Jun 15, 1993
- Kevin D. Fisher, William L. Abbott, John M. Cioffi, Philip S. Bednarz. "United States Patent 5,132,988 Adaptive decision feedback equalizer apparatus for processing information stored on digital storage media", Stanford University, Jul 21, 1992

### LINKS

- My Stanford Group: http://web.stanford.edu/group/cioffi/
- ASSIA Inc: https://www.assia-inc.com/about-us/leadership/
- Marconi Fellow Page: http://marconisociety.org/fellows/john-cioffi/
- Google Scholar Page: https://scholar.google.com/citations?user=x5jbQkEAAAAJ&hl=en

## Research & Scholarship

### CURRENT RESEARCH AND SCHOLARLY INTERESTS

John M. Cioffi – Illinois-BSEE: 1978, Stanford-PhDEE: 1984; Prof. EE, Stanford, 1986-present, now RECALLED emeritus. Bell Labs 1978-84; IBM Research 84-86. Founder Amati 1991 (1997 purchased by TI); Chairman and CEO ASSIA Inc. Cioffi's specific interests are in the area of high-performance digital transmission. Awards include USA's Medal of Technology (2023) presented by US president J. Biden, IEEE AG Bell (2010), Kirchmayer (2014) and Millennium Medals; Member Internet (2014) and Consumer-Electronics (2018) Halls of Fame; Marconi Fellow (2006); Member, US National (2001), UK Royal (2009), and Scottish Royal (2024) Engineering Academies; Member National Academy of Inventors (2025)l IEEE Kobayashi (2001), Armstrong (2014), Women-In-Coms-Mentor (2018) Awards, and a 1986 Presidential Investigator Award from US President R. Reagan. Cioffi has served over a dozen boards of directors, presently PhyTunes (Chairman), Fiberify, and Marconi Society, along with Advisory Boards of VectorML and Zenith Aerospace. 800+ papers and 150+ heavily licensed patents.

Cioffi researches and teaches in the area of digital transmission. He introduced the basic transmission methods that are a foundation for all modern broadband internet connectivity, which corresponding patents are Stanford Engineering's all-time #2 royalty generator (after #1 search engine). Roughly half his career was spent in industry during various periods as Stanford student or faculty.

## Teaching

### COURSES

**2025-26**

- Advanced Data Transmission Design: EE 379B (Spr)
- Data Transmission Design: EE 379A (Win)

**2023-24**

- Advanced Data Transmission Design: EE 379B (Spr)
- Data Transmission Design: EE 379A (Win)

### STANFORD ADVISEES

**Doctoral Dissertation Reader (AC)**

Thomas Horton King

**Doctoral (Program)**

Muhammad Umer

## Publications

### PUBLICATIONS

- **Cellular Subscriber Lines (CSL): A Wireless-Wireline Physically Converged Architecture** *IEEE TRANSACTIONS ON COMMUNICATIONS*
  Cioffi, J. M., Hwang, C., Kanellakopoulos, I., Oh, J., Kerpez, K. J.
  2020; 68 (12): 7289–7310
- **Ergodic Spectrum Management** *IEEE TRANSACTIONS ON COMMUNICATIONS*
  Cioffi, J. M., Hwang, C., Kerpez, K. J.
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- **Optimum Equivalent Loading in Multi-Dimensional Transmission (invited paper)** *IEEE Open Journal of the Communications Society*
  Cioffi, J. M., Chow, P. S., Kerpez, K. J.
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- **Tearbit DSLs** *IEEE Communications Magazine*
  Cioffi, J. M., Kerpez, K. J., Hwang, C., Kanellakopoulos, I.
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- **Iterative water-filling for Gaussian vector multiple access channels**
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- **Vectored-DMT: A FEXT canceling modulation scheme for coordinating users** *IEEE International Conference on Communications*
  Ginis, G., Cioffi, J. M.
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- **Very high-speed Digital Subscriber Lines (VDSL)**
  Cioffi, J., M.
  1998
- **Canonical packet transmission on the ISI channel with Gaussian noise**
  Cioffi, J., M., Forney Jr., G., D.
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- **Spatio-temporal coding for wireless communications**
  Raleigh, G., G., Cioffi, J., M.
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- **MMSE Decision-Feedback Equalizers and Coding - Part II: Coding Results** *IEEE Transactions on Communications*
  Cioffi, J., M., Dudevoir, G., P., Eyuboglu, M., V, Forney Jr., G., D.
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  Cai, Y., Fu, L., Zhao, D., Cioffi, J. M.
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  Kaleem, Z., Afaq, M., Yuen, C., Dobre, O. A., Cioffi, J. M.
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  Mohsin, M., Bhattacharya, S., Gorle, A. R., Jamshed, M., Cioffi, J. M.
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Sadia, H., Hassan, A., Abbas, Z., Abbas, G., Cioffi, J. M.
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