

Complete List of Publications

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Updated: November 14, 2021

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Articles in Preparation or Submitted

IEEE Access

(in preparation) 2021

Shuto Fukue, Hiroki Iimori, Koji Ishibashi, and Giuseppe Thadeu Freitas de Abreu: "Beamforming and Antenna Selection for Dynamic Time Division Duplex in Cell-Free MIMO Systems," in preparation for submission to *IEEE Access*.

IEEE Transactions on Wireless Communications

(submitted) 2021

Takumi Takahashi, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, and Seiichi Sampei: "Joint Channel Tracking and Data Estimation for Time-Varying MIMO Systems," in preparation for submission to *IEEE Transactions on Wireless Communications*.

IEEE Transactions on Wireless Communications

(submitted) 2021

Hyeon Seok Rou, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, David González G., and Osvaldo Gonsa: "Optimal Scalable Quadrature Spatial Modulation" in preparation for submission to *IEEE Trans. Wireless Commun.*

IEEE Journal of Selected Topics in Signal Processing

(submitted) 2021

Omid Taghizadeh, Tianyu Yang, Hiroki Iimori, and Giuseppe Thadeu Freitas de Abreu: "Quantization-Aided Secrecy: Full-Duplex C-RAN Communications with Untrusted Radios," in preparation for submission to *IEEE JSTSP*.

IEEE Transactions on Wireless Communications

(submitted) 2021

Hiroki Iimori, Takumi Takahashi, Koji Ishibashi, Giuseppe Thadeu Freitas de Abreu, David González G., and Osvaldo Gonsa: "Joint Activity and Channel Estimation for Extra-Large MIMO Systems Subject to Non-Stationarities," in preparation for submission to *IEEE Transactions on Wireless Communications*.

IEEE Transactions on Wireless Communications

(submitted) 2021

Kengo Ando, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, and Koji Ishibashi: "User-Heterogeneous Cell-Free Massive MIMO Downlink and Uplink Beamforming via Tensor Decomposition," submitted to *IEEE TWC*.

Articles Published or Accepted in 2021

Patent 12 Continental AG and Jacobs University Bremen

2021

Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, David González G, and Osvaldo Gonsa: "Method of Joint User Activity Detection and Channel Information Estimation in Extra-Large MIMO (XL-MIMO) Systems with Non-Stationarities," Apr. 2021.

Patent 11 Continental AG and Jacobs University Bremen

2021

Hyeon S. Rou, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, David González G, and Osvaldo Gonsa: "A Method of Scalable Space-Time Quadrature Spatial Modulation for Multidimensional Wireless Systems," Feb. 2021.

A290 IEEE Access

(accepted) 2021

JOURNAL ARTICLE Kengo Ando, Hiroki Iimori, Koji Ishibashi, and Giuseppe Thadeu Freitas de Abreu: "Uplink Signal Detection for Scalable Cell-Free Massive MIMO Systems with Robustness to Rate-Limited Fronthaul," submitted to *IEEE Access*.
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A289 IEEE Open Journal of the Communications Society

(accepted) 2021

JOURNAL ARTICLE Lorenzo Mucchi, Sara Jayousi, Stefano Caputo, Erdal Panayirci, Shahriar Shahabuddin, Jonathan Bechtold, Ivan Morales, Andrei Stoica, Giuseppe Thadeu Freitas de Abreu, and Herald Haas: "Physical-Layer Security in 6G Networks," *IEEE Open J. Commun. Society*, 2021.
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- A288 **IEEE Transactions on Vehicular Technology** (accepted) 2021
JOURNAL ARTICLE Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, David González G, and Osvaldo Gonsa: "Mitigating Channel Aging and Phase Noise in Millimeter Wave MIMO Systems," *IEEE Trans. Vehicular Technology*, June 2021
- A287 **IEEE Access** 2021
JOURNAL ARTICLE Liming Hou, Feng Lian, Shuncheng Tan, Cong'an Xu and Giuseppe Thadeu Freitas de Abreu: "Robust Generalized Labeled Multi-Bernoulli Filter for Multitarget Tracking with Unknown Non-stationary Heavy-tailed Measurement Noise," *IEEE Access*, vol 9, July 2021.
- A286 **IEEE Transactions on Wireless Communications** 2021
JOURNAL ARTICLE Hiroki Iimori, Takumi Takahashi, Koji Ishibashi, Giuseppe Thadeu Freitas de Abreu, and Wei Yu: "Grant-Free Access via Bilinear Inference for Cell-Free MIMO with Non-Orthogonal Pilots," *IEEE Transactions on Wireless Communications*, June, 2021.
- A285 **IEEE Access** 2021
JOURNAL ARTICLE Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, Omid Taghizadeh, Razvan-Andrei Stoica, Takanori Hara, and Koji Ishibashi: "A Stochastic Gradient Descent Approach for Hybrid MmWave Beamforming with Blockage and CSI-Error Robustness," *IEEE Access*, vol. 9, pp. 74471 - 74487, May 2021.
- A284 **IEEE Open Journal of the Communications Society** 2021
JOURNAL ARTICLE Omid Taghizadeh, Slawomir Stanczak, Hiroki Iimori, and Giuseppe Thadeu Freitas de Abreu: "Full-Duplex Amplify-and-Forward MIMO Relaying: Impairments Aware Design and Performance Analysis," *IEEE Open J. Commun. Society*, vol. 2, pp. 1249 - 1266, May 2021.
- A283 **IEEE Open Journal of the Communications Society** 2021
JOURNAL ARTICLE Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, Takanori Hara, Koji Ishibashi, Razvan-Andrei Stoica, David González G, and Osvaldo Gonsa: "Robust Symbol Detection in Overloaded NOMA Systems," *IEEE Open J. Commun. Society*, vol.2, pp. 512 - 533, March 2021.
- A282 **IEICE Radio Communication Systems Conference** (in Japanese) 2021
Kendo Ando, Hiroki Iimori, Giuseppe Abreu, and Koji Ishibashi: "Beamforming Design and Secrecy Capacity analysis for Cell-Free mMIMO," in Proc. IEICE Radio Communication Systems Conference, Oct. 2021.
- A281 **IEICE Radio Communication Systems Conference** (in Japanese) 2021
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- A280 **IEICE Radio Communication Systems Conference** (in Japanese) 2021
Kendo Ando, Hiroki Iimori, Giuseppe Abreu, Takumi Takahashi, and Koji Ishibashi: "Antenna Configuration and Robust Receiver Design for Scalable Cell-Free Massive MIMO with Capacity Limited Fronthaul," in Proc. IEICE Radio Communication Systems Conference, Aug. 2021.
- A279 **IEICE Radio Communication Systems Conference** (in Japanese) 2021
Sota Uchimura, Hiroki Iimori, Giuseppe Abreu and Koji Ishibashi: "Low-Complexity Robust Beamforming Design for Millimeter-Wave Communications with Random Blockage," in Proc. IEICE Radio Communication Systems Conference, Aug. 2021.
- A278 **IEICE Radio Communication Systems Conference** (in Japanese) 2021
Shuto Fukue, Hiroki Iimori, Giuseppe Abreu and Koji Ishibashi: "Resource Allocation and Beamforming Design Considering User Fairness for Cell-Free Massive MIMO System with Dynamic TDD," in Proc. IEICE Radio Communication Systems Conference, Aug. 2021.
- A277 **IEICE Radio Communication Systems Conference** (in Japanese) 2021
Kengo Ando, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, and Koji Ishibashi: "Tensor-Aided Beamforming Design for Full Duplex Cell-Free MIMO," in Proc. IEICE Radio Communication Systems Conference, Jun. 23-25, 2021.
- A276 **IEICE RCS - Japan** (in Japanese) 2021
Shuto Fukue, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu and Koji Ishibashi: "A Study on User-Fair Dynamic TDD for Cell-Free Massive MIMO Systems," *Proc. IEICE General Conference*, Mar. 9-12, 2021.
- A275 **IEICE RCS - Japan** (in Japanese) 2021
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- A274 **IEICE RCS - Beppu, Japan** (in Japanese) 2021
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- White Pp. 4 **Arxiv - 6G White Paper** 2020
Mika Ylianttila, Raimo Kantola, Andrei Gurtov, Lozenzo Mucchi, Ian Oppermann, Zheng Yan, Tri Hong Nguyen, Fei Liu, Tharaka Hewa, Madhusanka Liyanage, Ahmad Ijaz, Juha Partala, Robert Abbas, Artur Hecker, Sara Jayousi, Alessio Martinelli, Stefano Caputo, Jonathan Bechtold, Ivan Morales, Andrei Stoica, Giuseppe Thadeu Freitas de Abreu, Shahriar Shahabuddin, Erdal Panayirci, Harald Haas, Tanesh Kumar, Basak Ozan Ozparlak, Juha Rönning: "Research challenges for Trust, Security and Privacy," in *Arxiv - 6G White Paper*
- Patent 10 WIOsense GmbH** 2020
Jonathan Bechtold, Ivan Morales, Andrei Stoica and Giuseppe Thadeu Freitas de Abreu: "Verfahren und Vorrichtung zur Erkennung sowohl von digitalen decode-forward Relais als auch transparenten amplify-forward Relais in drahtlosen Peer-to-Peer- Näherungsverbindungen," *IPR-102020133526.1 DE*, Dec. 2020.
- Patent 9 Continental AG and Jacobs University Bremen** 2020
Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, Razvan-Andrei Stoica, David Gonzales, Andreas Andrae and Osvaldo Gonsa: "Estimation Method of Discrete Digital Signals in Noisy Overloaded Wireless Communication Systems with CSI Errors," *IPR-2020E01911 DE*, Mar. 2020.
- Patent 8 Continental AG and Jacobs University Bremen** 2020
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- A273 **IEEE Access** 2020
JOURNAL ARTICLE Naoya Hirose, Hiroki Iimori, Koji Ishibashi and Giuseppe Thadeu Freitas de Abreu: "Minimizing Age of Information in Energy Harvesting Wireless Sensor Networks", *IEEE Access*, Nov 2020.
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- A272 **IEEE Wireless Communications Letters** 2020
JOURNAL ARTICLE Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, Omid Taghizadeh, Razvan-Andrei Stoica, Takanori Hara and Koji Ishibashi: "Stochastic Learning Robust Beamforming for Millimeter-Wave Systems with Path Blockage," *IEEE Wireless Communication Letters*, Jul.2020.
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- A271 **APS Physical Review E** 2020
JOURNAL ARTICLE Luis Carlos A. Torres-Sánchez, Giuseppe Thadeu Freitas de Abreu and Stefan Kettemann: "Analysis of the dynamics and topology dependencies of small perturbations in electric transmission grids", *APS Physical Review E*. vol. 101, no. 1, Jan. 2020
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- A270 **IEEE GLOBECOM - Taipei, Taiwan** 2020
Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, and Koji Ishibashi: "Full-Duplex MIMO Systems with Hardware Limitations and Imperfect Channel Estimation," *Proc. IEEE Global Communications Conference (GLOBECOM)*, Dec. 2020.
- A269 **IEEE GLOBECOM - Taipei, Taiwan** 2020
Omid Taghizadeh, Slawomir Stanczak, Hiroki Iimori, and Giuseppe Thadeu Freitas de Abreu: "Full-Duplex AF MIMO Relaying: Impairments Aware Design and Performance Analysis," *Proc. IEEE Global Communications Conference (GLOBECOM)*, Dec. 2020.
- A268 **IEICE RCS - Japan** (in Japanese) 2020
Shuto Fukue, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu and Koji Ishibashi: "Dynamic TDD Allocation via Fractional Programming for Cell-Free Massive MIMO Systems," *Proc. IEICE Technical Committee on Radio Communication Systems Workshop*, Dec. 17-18, 2020.
- A267 **IEEE Asilomar CSSC - Pacific Grove, USA** 2020
Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, Omid Taghizadeh, and Koji Ishibashi: "Discrete-Aware Matrix Completion via Proximal Gradient," *Proc. Asilomar Asilomar Conference on Signals, Systems and Computers*, Nov. 2020.
- A266 **IEEE FUSION – Online** 2020
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- A265 **IEICE RCS - Beppu, Japan** (in Japanese) 2020
Kengo Ando, Hiroki Iimori, Koji Ishibashi and Giuseppe Thadeu Freitas de Abreu: "Discreteness Aware Receiver Design and Antenna Configuration for Distributed MIMO," *Proc. IEICE Technical Committee on Radio Communication Systems Workshop*, Apr. 23–24, 2020.
- A264 **IEICE RCS - Beppu, Japan** (in Japanese) 2020
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- A263 **IEEE ICOIN - Barcelona, Spain** 2020
Hiroki Iimori, Razvan-Andrei Stoica and Giuseppe Thadeu Freitas de Abreu: "Robust Sparse Recovery of mmWave Channel Estimates via Fractional Programming", *Proc. IEEE International Conference on Information Networking*, (ICOIN 2020), Jan. 7 - 20, 2020.

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- Patent 5 Continental AG and Jacobs University Bremen** 2019
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- A262 **IEEE Transactions on Wireless Communications** 2019
JOURNAL ARTICLE Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu and George Alexandropoulos: "MIMO Beamforming Schemes for Hybrid SIC FD Radios with Imperfect HW and CSI," *IEEE Transactions on Wireless Communications*, July, 2019
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- A261 **IEEE Access** 2019
JOURNAL ARTICLE Razvan-Andrei Stoica, Giuseppe Thadeu Freitas de Abreu, Takanori Hara and Koji Ishibashi: "Massively Concurrent Non-orthogonal Multiple Access for 5G Networks and Beyond", *IEEE Access*, June 2019.
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- A260 **IEEE Access** 2019
JOURNAL ARTICLE Razvan-Andrei Stoica, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, Koji Ishibashi: "Frame Theory and Fractional Programming for Sparse Recovery-based mmWave Channel Estimation," *IEEE Access*, vol. 7, pp. 150757–150774, Oct. 2019.
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- A259 **IEEE SITA - Kagoshima, Japan** 2019
Shuto Fukue, Hiroki Iimori, Koji Ishibashi, Giuseppe Thadeu Freitas de Abreu and Shigeru Takayama: "Cooperative Pilot Design for Multi-Cell Massive MIMO Systems under Pilot Contamination," *The 42nd Symposium on Information Theory and its Applications (SITA 2019)*, Nov. 26 - 29, 2019.
- A258 **IEEE SITA - Kagoshima, Japan** 2019
Hiroki Iimori, Koji Ishibashi and Giuseppe Thadeu Freitas de Abreu: "A Discreteness-Aware Linear MMSE Filter," *The 42nd Symposium on Information Theory and its Applications (SITA 2019)*, Nov. 26 - 29, 2019.
- A257 **IEEE CAMSAP - Guadalupe, French West Indies** 2019
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- A256 **IEEE CAMSAP - Guadalupe, French West Indies** 2019
Naoya Hirosawa, Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu and Koji Ishibashi: "Age-of-Information Minimization in Two-User Multiple Access Channel with Energy Harvesting", *Proc. IEEE Conference on Computational Advances in Multi-sensor Adaptive Processing*, (CAMSAP 2019), Dec. 15 - 18, 2019.

- A255 **IEEE Asilomar CSSC - Monterey, USA** **2019**
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- A254 **IEEE Asilomar CSSC - Monterey, USA** **2019**
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- A253 **IEICE RCS - Tokyo, Japan** **2019**
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- A252 **IEEE SPAWC - Cannes, France** **2019**
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- A251 **IEEE WiOpt - Avignon, France** **2019**
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- A250 **IEEE WCNC - Marrakech, Morocco** **2019**
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- A249 **IEEE WCNC - Marrakech, Morocco** **2019**
Takanori Hara, Razvan-Andrei Stoica, Hiroki Iimori, Koji Ishibashi and Giuseppe Thadeu Freitas de Abreu: "On the Sum-Rate Capacity and Spectral Efficiency Gains of Massively Concurrent NOMA Systems", *Proc. IEEE Wireless Communications and Networking Conference*, (WCNC 2019), 15-18 April, 2019.
- A248 **IEEE WCNC - Marrakech, Morocco** **2019**
Hiroki Iimori, Giuseppe Thadeu Freitas de Abreu, George Alexandropoulos and Koji Ishibashi: "Transmission Strategies in Imperfect Bi-directional Full-Duplex MIMO Systems", *Proc. IEEE Wireless Communications and Networking Conference*, (WCNC 2019), 15-18 April, 2019.

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- A246 **IEEE Transactions on Wireless Communications** **2018**
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- A245 **IEEE Transactions on Wireless Communications** **2018**
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- A243 **IEEE Systems Journal** **2018**
JOURNAL ARTICLE Satyanarayana Vuppala and Giuseppe Thadeu Freitas de Abreu: "Asymptotic Secrecy Analysis of Random Networks with Colluding Eavesdroppers", *IEEE Systems Journal*, vol. 12, no. 1, pp. 871 - 880, Mar. 2018.
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- A241 **IEEE SITA - Iiwaki, Japan** **2018**
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- A240 **IEEE SITA - Iiwaki, Japan** **2018**
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- A239 **IEEE GlobalSIP - Anaheim (CA), USA** **2018**
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- A238 **IEEE GlobalSIP - Anaheim (CA), USA** **2018**
Giuseppe Thadeu Freitas de Abreu and Alireza Ghods: "Turbo MRC-SMDS: Low-complexity Cooperative Localization from Hybrid Information," *Proc. IEEE 6th Global Conference on Signal and Information Processing (GlobalSIP 2018)*, Nov. 26th - 29th, Nov., 2018.
- A237 **IEEE GlobalSIP - Anaheim (CA), USA** **2018**
Giuseppe Thadeu Freitas de Abreu and Alireza Ghods: "Hybrid Wireless Localization via Complex-domain Isometric Embedding," *Proc. IEEE 6th Global Conference on Signal and Information Processing (GlobalSIP 2018)*, November 26th - 29th, Nov., 2018.
- A236 **IEEE Asilomar CSSC - Monterey, USA** **2018**
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- A235 **IEEE WPNC - Bremen, Germany** **2018**
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- A234 **IEEE WPNC - Bremen, Germany** **2018**
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- A233 **IEEE VTC - Chicago, USA** **2018**
Razvan-Andrei Stoica, Giuseppe Thadeu Freitas de Abreu and Hiroki Iimori: "A Frame-Theoretic Scheme for Robust Millimeter Wave Channel Estimation," *Proc. IEEE Vehicular Communications Conference - Workshop on 5G Millimeter-Wave Channel Measurement, Models, and Systems*, (VTC-Workshop 2018), August 27-30, 2018.
- A232 **IEEE SPAWC - Kalamata, Greece** **2018**
Hiroki Iimori and Giuseppe Thadeu Freitas de Abreu: "Two-Way Full-Duplex MIMO with Hybrid TX-RX MSE Minimization and Interference Cancellation," *Proc. IEEE International Workshop on Signal Processing Advances in Communications*, Jul. 25-28 2018.
- A231 **IEEE SPAWC - Kalamata, Greece** **2018**
Sugiyama Kouhei, Hiroki Iimori and Giuseppe Thadeu Freitas de Abreu: "Statistical Analysis of EH Battery State under Noisy Energy Arrivals," *Proc. IEEE International Workshop on Signal Processing Advances in Communications*, Jul. 25-28 2018.
- A230 **IEEE ICC Workshop - Kansas City, USA** **2018**
Hiroki Iimori and Giuseppe Thadeu Freitas de Abreu: "Performance Analysis of Non-linear Wireless Communications in Ultra Dense Networks", *Proc. IEEE Workshop on Full-duplex Communications for Future Wireless Networks co-located with Proc. IEEE International Conference on Communications*, (ICC 2018), Kansas City, USA 20-24 May 2018.

- A229 **IEICE RCS - Yamaguchi, Japan** **(Best Paper Award) 2018**
 Hiroki Iimori and Giuseppe Thadeu Freitas de Abreu: "Joint Design of Multi-tap Analog Canceller and Digital Beamforming for Two-Way Full Duplex MIMO Systems," *IEICE Radio Communications Symposium (in Japanese)*, vol. 118, no. 12, RCS2018-7, pp. 37-42, April 2018.
- A228 **IEEE WCNC - Barcelona, Spain** **2018**
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- A227 **IEEE WCNC - Barcelona, Spain** **2018**
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- A226 **IEEE WCNC - Barcelona, Spain** **2018**
 Cristian Pană, Stefano Severi and Giuseppe Thadeu Freitas de Abreu: "Super-Accurate Source Localization via Multiple Measurement Vectors and Compressed Sensing", *Proc. IEEE Wireless Communications and Networking Conference, (WCNC 2017)*, 15-18 April, 2018.
- A225 **IEICE RCS - Yokosuka, Japan** **2018**
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