

[I28] Distributed Multiple-Input Multiple-Output Low Earth Orbit Satellite Systems and Methods
Mohammed Abdelsadek, Gunes Karabulut Kurt, Halim Yanikomeroglu

- **[P41]** [US 12,143,177 B2](#) – Patent date: 12 November 2024 [[pdf](#)]
Publication no: [US2023/0179273 A1](#) | publication date: 08 June 2023 [[pdf](#)]
Application no: 18/074,893 | application date: 05 December 2022
Provisional application no: 63/264,890 | application date: 03 December 2021
- **CA**
Publication no: [CA3239744 A1](#) | publication date: 08 June 2023 [[pdf](#)]
Application no: CA 2022/051777 | application date: 05 December 2022
- **KR**
Publication no: [KR20240127357 A](#) | publication date: 22 August 2024 [[pdf](#)]
Application no: KR1020247020712 A | application date: 05 December 2022
- **WIPO | PCT**
Publication no: [WO2023/097408 A1](#) | publication date: 08 June 2023 [[pdf](#)]
Application no: PCT/CA2022/051777 | application date: 05 December 2022

[I27] Vision Assisted User Clustering in mmWave/THz-NOMA Systems
Halim Yanikomeroglu, Omar Maraqa, Saad Al-Ahmadi, Aditya Sriram Rajasekaran, Hamza Sokun

- **USA**
Provisional application no: 63/231,597 | application date: 10 August 2021
- **WIPO | PCT**
Publication no: [WO2023/017301 A1](#) | publication date: 16 February 2023 [[pdf](#)]
Application no: PCT/IB2021/057455 | application date: 12 August 2021

[I26] Detector for Faster than Nyquist Transmitted Data Symbols
Ahmed Mohamed Ali Ibrahim, Ebrahim Bedeer Mohamed, Halim Yanikomeroglu.

- **USA**
Publication no: [US2024/0305506 A1](#), publication date: 12 September 2024 [[pdf](#)]
Application no: 18/277449 | application date: 16 August 2023
Provisional application no | 63/150798, application date: 18 Feb 2021
- **CA**
Publication no: [CA3208642A](#) | publication date: 25 August 2022 [[pdf](#)]
Application no: CA3208642 | application date: 16 February 2022
- **WIPO | PCT**
Publication no: [WO2022/175846 A1](#) | publication date: 25 August 2022 [[pdf](#)]
Application no: PCT/IB2022/051391 | application date: 16 February 2022

[125] Deep Learning-based User Clustering in Millimeter Wave Non-Orthogonal Multiple Access Communications

Hamza Sokun, Aditya Sriram Rajasekaran, Omar Maraqa, Halim Yanikomeroglu, Saad Al-Ahmadi

- **USA**
Publication no: [US2024/0072923A1](#) | publication date: 29 February 2024 [[pdf](#)]
Application no: US18/256,467 | application date: 28 December 2020
- **EP**
Publication no: [EP4268394A1](#), publication date: 01 November 2023 [[pdf](#)]
Application no: EP20833967.1A, application date: 28 December 2020
- **WIPO | PCT**
Publication no: [WO2022/144568 A1](#), publication date: 07 July 2022 [[pdf](#)]
Application no: PCT/IB2020/062488, application date: 28 December 2020

[124] Enabling Wireless Network Personalization using Zone of Tolerance Modeling and AI-Enabled Optimization

Rawan Alkurd, Halim Yanikomeroglu, Ibrahim Abualhaol

- **CA**
Publication no: [CA3126091 A1](#), publication date: 28 January 2022 [[pdf](#)]
Application no: CA3126091, application date: 27 July 2021

[123] Enabling Wireless Network Personalization using Zone of Tolerance Modeling and Predictive Analytics

Rawan Alkurd, Halim Yanikomeroglu, Ibrahim Abualhaol

- **[P40] US 11,736,973 B2** – Patent date: 22 August 2023 [[pdf](#)]
Publication no: [US2021/0266781 A1](#), publication date: 26 August 2021 [[pdf](#)]
Application no: 17/188,683, application date: 01 March 2021
Provisional patent application no: 63/057,560, application date: 28 July 2020
Provisional patent application no: 62/724,195, application date: 29 August 2018
- **EP**
Publication no: [EP3845023 A4](#), publication date: 15 June 2022 [[pdf](#)]
Publication no: [EP3845023 A1](#), publication date: 07 July 2021 [[pdf](#)]
Application no: EP19856044.3A, application date: 29 August 2019
- **CA**
Publication no: [CA3111030 A1](#), publication date: 05 March 2020 [[pdf](#)]
Application no: CA3111030A, application date: 29 August 2019
- **WIPO | PCT**
Publication no: [WO2020/041883 A1](#) – Publication date: 05 March 2020 [[pdf](#)]
Application no: PCT/CA2019/051197, application date: 29 August 2019

[122] System and Method for Providing Adaptive Synchronization of LTE Communications Systems

Amr El-Keyi, Halim Yanikomeroglu, Oktay Ureten, Trevor Noel Yensen

- **[P26]** [US 10,219,234 B2](#) – Patent date: 26 February 2019 [[pdf](#)]
Publication no: US2018/0054787 A1, publication date: 22 February 2018
Application no: 15/680,164, application date: 17 August 2017
Provisional patent application no: 62/376,477, application date: 18 August 2016
- **[P24]** [CA 2,976,563 C](#) – Patent date: 04 September 2018 [[pdf](#)]
Publication no: CA2976563 A1, publication date: 18 February 2018
Application no: CA2976563, application date: 17 August 2017
- **[P38]** [GB 2,555,205 B](#) – Patent date: 21 July 2021 [[pdf](#)]
Publication no: GB2555205 A, publication date: 25 April 2018
Publication no: GB2017/13198 D0, publication date: 04 October 2017
Application no: GB2017/13198 A, application date: 17 August 2017
- **[P39]** [AU 2017 216551 B2](#) – Patent date: 09 September 2021 [[pdf](#)]
Publication no: AU2017216551 A1, publication date: 08 March 2018
Application no: AU2017/216551, application date: 18 August 2017

[I21] Method for Determining an Encoding Scheme and Symbol Mapping

Ian Marsland, Reinhard Balogun, Ramy Gohary, Halim Yanikomeroglu, Ngoc Dung Dao, Nimal Gamini Senarath

- **[P37]** [US 10,623,142 B2](#) – Date of patent: 14 April 2020 [[pdf](#)]
Publication no: US2017/0126354 A1, publication date: 04 May 2017
Application no: 15/175,675, application date: 07 June 2016
Provisional application no: 62/248,974, application date: 30 October 2015
- **WIPO | PCT**
Publication no: [WO 2017/072597 A1](#) – Publication date: 04 May 2017 [[pdf](#)]
Application no: PCT/IB2016/053413, application date: 09 June 2016

[I20] System and Method for Utilizing Multidimensional Constellations

Hossein Khoshnevis, Ian Marsland, Halim Yanikomeroglu, Ngoc Dung Dao, Nimal Gamini Senarath

- **[P34]** [US 10,433,187 B2](#) – Date of patent: 01 October 2019 [[pdf](#)]
Publication no: US2016/0309344 A1, publication date: 20 October 2016
Application no: 15/097,784, application date: 13 April 2016
Provisional application no: 62/149,222, application date: 17 April 2015
- **WIPO | PCT**
Publication no: [WO2016/166706 A1](#) – Publication date: 20 October 2016 [[pdf](#)]
Application no: PCT/IB2016/052140, application date: 14 April 2016

[I19] System and Method for User Terminal-Aware Cell Switch-Off

Ibrahim Aydin, Ngoc Dung Dao, Nimal Gamini Senarath, Halim Yanikomeroglu

- **[P23]** [US 9,980,218 B2](#) – Date of patent: 22 May 2018 [[pdf](#)]
Publication no: US2016/0255581 A1, publication date: 01 September 2016
Application no: 15/052,261, application date: 24 February 2016
Provisional application no: 62/121,692, application date: 27 February 2015
- **WIPO | PCT**
Publication no: [WO2016/134676 A1](#) – Publication date: 01 September 2016 [[pdf](#)]
Application no: PCT/CN2016/074738, application date: 27 February 2016

[I18] System and Method for Wireless Load Balancing

Rainer Schoenen, Ziyang Wang, Halim Yanikomeroglu, Nimal Gamini Senarath, Ngoc-Dung Dao

- **[P17]** [US 9,642,039 B2](#) – Patent date: 02 May 2017 [[pdf](#)]
Publication no: US2016/0050588 A1, publication date: 18 February 2016
Application no: 14/643,636, application date: 10 March 2015
Provisional patent application no: 62/036,801, application date: 13 August 2014
- **[P30]** [US 10,306,515 B2](#) – Patent date: 28 May 2019 [[pdf](#)]
Publication no: US2017/0230866 A1, publication date: 10 August 2017
Application no: 15/497,402, application date: 26 April 2017
Provisional patent application no: 62/036,801, application date: 13 August 2014
- **WIPO | PCT**
Publication no: [WO2016/023411 A1](#) – Publication date: 18 February 2016 [[pdf](#)]
Application no: PCT/CN2015/084929, application date: 23 July 2015

[I17] System and Method for Multiple-Input Multiple-Output Communication

Ramy Gohary, Halim Yanikomeroglu

- **[P16]** [US 9,467,212 B2](#) – Patent date: 11 October 2016 [[pdf](#)]
Publication no: US2015/0326284 A1, publication date: 12 November 2015
Application no: 14/706,591, application date: 07 May 2015
Provisional application no: 61/991,399, application date: 09 May 2014
- **[P29]** [CN 106,233,652 B](#) – Patent date: 28 May 2019 [[pdf](#)]
Publication no: CN 106233652 A, publication date: 14 December 2016
Application no: CN2015/80021970, application date: 08 May 2015
- **[P31]** [EP 3,103,209 B1](#) – Patent date: 26 June 2019 [[pdf](#)]
Publication no: EP 3103209 A4, publication date: 22 March 2017
Publication no: EP 3103209 A1, publication date: 14 December 2016
Application number: EP2015/0788996, application date: 08 May 2015
- **WIPO | PCT**
Publication no: [WO2015/169247 A1](#) – Publication date: 12 November 2015 [[pdf](#)]
Application no: PCT/CN2015/078505, application date: 08 May 2015

[I16] System and Method for Grassmannian Signaling in a Broadband Network
Yaser Fouad, Ramy Gohary, Halim Yanikomeroglu, Hosein Nikopour

- **[P18]** [US 9,654,324 B2](#) – Patent date: 16 May 2017 [[pdf](#)]
Publication no: US2015/0318970 A1, publication date: 05 November 2015
Application no: 14/702,220, application date: 01 May 2015
Provisional application no: 61/987,995, application date: 02 May 2014
- **WIPO | PCT**
Publication no: [WO2015/168628 A1](#) – Publication date: 05 November 2015 [[pdf](#)]
Application no: PCT/US2015/028904, application date: 01 May 2015

[I15] System and Method for Random Access
Jing Dang, Halim Yanikomeroglu, Nimal Gamini Senarath

- **[P35]** [US 10,476,834 B2](#) – Date of patent: 12 November 2019 [[pdf](#)]
Publication no: US2015/0264132 A1, publication date: 17 September 2015
Application no: 14/644,959, application date: 11 March 2015
Provisional application no: 61/951,371, application date: 11 March 2014
- **WIPO | PCT**
Publication no: [WO 2015/138614 A1](#) – Publication date: 17 September 2015 [[pdf](#)]
Application no: PCT/US2015/019982, application date: 11 March 2015

[I14] System and Method for Greedy-based Autonomous Resource Block Assignment Scheme for Cellular Networks with Self-Organizing Relaying Terminals
Yaser Fouad, Ramy Gohary, Halim Yanikomeroglu, Gamini Senarath

- **[P13]** [US 9,288,679 B2](#) – Patent date: 15 March 2016 [[pdf](#)]
Publication no: US2015/0031406 A1, publication date: 29 January 2015
Application no: 14/340,322, application date: 24 July 2014
Provisional application no: 61/858,480, application date: 25 July 2013
- **[P25]** [CN 105,359,605 B](#) – Patent date: 19 February 2019 [[pdf](#)]
Publication no: CN 105359605 A, publication date: 24 February 2016
Application no: CN2014/80036844, application date: 24 July 2014
- **WIPO | PCT**
Publication no: [WO2015/013540 A1](#), publication date: 29 January 2015 [[pdf](#)]
Publication no: [WO2015/013540 A8](#), publication date: 11 February 2016
International application no: PCT/US2014/48069, application date: 24 July 2014

[I13] System and Method for Multi-Objective Cell Switch-Off in Wireless Networks
David G. Gonzalez, Halim Yanikomeroglu, Nimal Gamini Senarath

- **[P19]** [US 9,730,153 B2](#) – Patent date: 08 August 2017 [[pdf](#)]
Publication no: US 2015/0023163 A1, publication date: 22 January 2015
Application no: 14/334,134, application date: 17 July 2014

Provisional application no: 61/847,403, application date: 17 July 2013

- **[P22]** [EP 3,000,204 B1](#) – Patent date: 02 May 2018 [[pdf](#)]
Publication no: EP3000204 A1, publication date: 30 Mar 2016
Publication no: EP3000204 A4, publication date: 28 September 2016
Application no: EP2014/0826725, application date: 17 July 2014
- **[P32]** [CN 105,531,963 B](#) – Patent date: 13 August 2019 [[pdf](#)]
Publication no: CN 105531963 A, publication date: 27 April 2016
Application no: CN2014/80037924, application date: 17 July 2014
- **WIPO | PCT**
Publication no: [WO2015/009937 A1](#) – Publication date: 22 January 2015 [[pdf](#)]
Application no: PCT/US2014/047041, application date: 17 July 2014

[I12] System and Method for Controlling Multiple Wireless Access Nodes
Yegui Cai, Fei Richard Yu, Gamini Senarath, Halim Yanikomeroğlu

- **[P15]** [US 9,451,611 B2](#) – Patent date: 20 September 2016 [[pdf](#)]
Publication no: US2014/0355535 A1, publication date: 04 December 2014
Application no: 14/292,483, application date: 30 May 2014
Provisional application no: 61/829,469, application date: 31 May 2013
- **[P33]** [CN 105,379,412 B](#) – Patent date: 16 August 2019 [[pdf](#)]
Publication no: CN 105379412 A, publication date: 02 March 2016
Application no: CN2014/80030416, application date: 30 May 2014
- **WIPO | PCT**
Publication no: [WO2014/194283 A1](#), publication date: 04 December 2014 [[pdf](#)]
Application no: PCT/US2014/040373, application date: 30 May 2014

[I11] System and Method for Network Resource Allocation Considering User Experience, Satisfaction and Operator Interest

Alireza Sharifian, Rainer Schoenen, Halim Yanikomeroğlu, Gamini Senarath, Ho Ting Cheng, Petar Djukic

- **USA** – abandoned
Publication no: [US2014/0229210 A1](#), publication date: 14 August 2014 [[pdf](#)]
Application no: 14/181,160, application date: 14 February 2014
Provisional application no: 61/764,903, application date: 14 February 2013
Provisional application no: 61/764,895, application date: 14 February 2013
- **WIPO | PCT**
Publication no: [WO2014/127280 A2](#), publication date: 21 August 2014 [[pdf](#)]
Publication no: [WO2014/127280 A3](#), publication date: 09 October 2014
Application no: PCT/US2014/016575, application date: 14 February 2014

[I10] System and Method for Charging Services Using Effective Quanta Units

Rainer Schoenen, Halim Yanikomeroglu

- **[P21]** [US 9,911,106 B2](#) – Patent date: 06 March 2018 [[pdf](#)]
Publication no: US2014/0195394 A1, publication date: 10 July 2014
Application no: 14/141,143, application date: 26 December 2013
Provisional application no: 61/749,584, application date: 07 January 2013
- **[P20]** [EP 2,941,845 B1](#) – Patent date: 28 February 2018 [[pdf](#)]
Publication no: EP 2941845 A4, publication date: 09 December 2015
Publication no: EP 2941845 A1, publication date: 11 November 2015
Application no: EP2014/0735233, application date: 03 January 2014
- **[P28]** [CN 104,956,622 B](#) – Patent date: 12 April 2019 [[pdf](#)]
Publication no: CN 104956622 A, publication date: 30 September 2015
Application no: CN2014/80004160, application date: 03 January 2014
- **WIPO | PCT**
Publication no: [WO 2014/106476 A1](#) – Publications date: 10 July 2014 [[pdf](#)]
Application no: PCT/CN2014/070095, application date: 03 January 2014

[I09] System and Methods to Achieve Optimum Efficiency-Jain Fairness in Wireless Systems
Akram Bin Sediq, Ramy Gohary, Halim Yanikomeroglu, Gamini Senarath, Ho Ting Cheng

- **[P14]** [US 9,369,925 B2](#) – Patent date: 14 June 2016 [[pdf](#)]
Publication no: US2014/0120974 A1, publication date: 01 May 2014
Patent application no: 14/067,542, application date: 30 October 2013
Provisional application no: 61/720,230, application date: 30 October 2012
- **[P27]** [CN 104,770, 036 B](#) – Patent date: 08 March 2019 [[pdf](#)]
Publication no: CN 104770036 A, publication date: 08 July 2015
Application no: CN2013/80056529, application date: 30 October 2013
- **WIPO | PCT**
Publication no: [WO2014/070937 A1](#), publication date: 08 May 2014 [[pdf](#)]
Application no: PCT/US2013/067589, application date: 30 October 2013

[I08] Inter-cell Interference Coordination for Wireless Communication Systems
Akram Bin Sediq, Rainer Schoenen, Halim Yanikomeroglu, Gamini Senarath, Zhijun Chao, Ho Ting Cheng, Peiying Zhu

- **[P10]** [US 9,042,933 B2](#) – Patent date: 26 May 2015 [[pdf](#)]
Publication no: US2013/0095872 A1, publication date: 18 April 2013
Application no: 13/438,624, application date: 03 April 2012
Provisional application no: 61/547,506, application date: 14 October 2011

[I07] Resource Allocation Method and Device for Amplify-and-Forward Relay Network
Alireza Sharifian, Petar Djukic, Halim Yanikomeroglu, Jietao Zhang

- **[P03]** [US 8,477,679 B2](#) – Patent date: 02 July 2013 [[pdf](#)]
Publication no: US2013/0028171 A1, publication date: 31 January 2013
Application no: 13/633,498, application date: 02 October 2012
- **[P07]** [CN 102,244,930 B](#) – Patent date: 30 April 2014 [[pdf](#)]
Publication no: CN 102244930 A, publication date: 16 November 2011
Application no: CN2010/10175925, application date: 13 May 2010
- **WIPO | PCT**
Publication no: [WO2011/140851](#), publication date: 17 November 2011 [[pdf](#)]
Application no: PCT/CN2011/071416, application date: 01 March 2011

[I06] Data Transmission Method and System in Cooperative Relay Network, Intermediate Node and Source Node

Akram Salem Bin Sediq, Petar Djukic, Halim Yanikomeroglu, Jietao Zhang

- **[P05]** [CN 102,237,988 B](#) – Patent date: 01 January 2014 [[pdf](#)]
Publication no: CN 102237988 A, publication date: 09 November 2011
Application no: CN2010/10159054.4, application date: 26 April 2010
- **WIPO | PCT**
Publication no: [WO2011/134305 A1](#), publication date: 03 November 2011 [[pdf](#)]
Application no: PCT/CN2011/071286, application date: 25 February 2011

[I05] Method for Relaying Data in Wireless Network and Personal Relay of Enabling the Method, and Mobile Device for Communicating with the Personal Relay

Young-Doo Kim, Mohamed Salem, Abdulkareem Adinoyi, Halim Yanikomeroglu

- **[P11]** [KR 101,537,736 B1](#) – Patent date: 17 July 2015 [[pdf](#)]
Publication no: KR2011/0026222 A, publication date: 15 March 2011
Application no: KR2009/0084026, application date: 07 September 2009

[I04] Scheduling Apparatus and Method of Relay-Based Network

Young-Doo Kim, Mohamed Rashad Salem, Abdulkareem Adinoyi, Halim Yanikomeroglu, David Falconer

- **[P04]** [US 8,565,144 B2](#) – Patent date: 23 October 2013 [[pdf](#)]
Publication no: US2010/0232344 A1, publication date: 16 September 2010
Application no: 12/567,776, application date: 27 September 2009
- **[P12]** [KR 101,542,152 B1](#) Patent date: 05 August 2015 [[pdf](#)]
Publication no: KR2010/0104010 A, publication date: 29 September 2010
Application no: KR2009/0022132, application date: 16 March 2009

[I03] Apparatus and Method for Allocating Subchannels and Controlling Interference in OFDMA Systems

Mohamed Rashad Salem, Abdulkareem Adinoyi, Mahmudur Rahman, Halim Yanikomeroglu, David Falconer, Young-Doo Kim

- **[P01]** [US 8,339,975 B2](#) – Patent date: 25 December 2012 [[pdf](#)]
Publication number: US2009/0310478 A1, publication date: 17 December 2009
Application no: 12/341,933, application date: 22 December 2008
- **[P09]** [JP 5,691,103 B2](#) – Patent date: 01 April 2015 [[pdf](#)]
Publication no: JP2013/258780 A, publication date: 26 December 2013
Application no: ?, application date: 19 September 2013
- **[P06]** [JP 5,419,182 B2](#) – Patent date: 19 February 2014 [[pdf](#)]
Publication no: JP2012/504876 A, publication date: 23 February 2012
Application no: ?, application date: 23 April 2009
- **[P08]** [KR 101,469,143 B1](#) – Patent Date: 04 December 2014 [[pdf](#)]
Publication no: KR2009/0128789 A, publication date: 16 December 2009
Application no: KR2008/0054726, application date: 11 June 2008
- **[P36]** [EP 2,289,277 B1](#) – Patent date: 08 April 2020 [[pdf](#)]
Publication no: EP 2289277 A4, publication date: 28 September 2016
Publication no: EP 2289277 A2, publication date: 02 March 2011
Application number: EP 20090762597, application date: 23 April 2009
- **WIPO | PCT**
Publication no: [WO2009/151210 A2](#), publication date: 17 December 2009 [[pdf](#)]
Publication no: WO2009/151210 A3; publication date: 17 November 2011
Application no: PCT/KR2009/002119, application date: 23 April 2009

[I02] Method and Device for Estimating Channel Parameters (Verfahren und Vorrichtung zur Schätzung von Kanalparametern)

Stefan Valentin, Tobias Volkhausen, Holger Karl, Halim Yanikomeroglu, Furuzan Atay Onat

- **DE** – withdrawn
Publication no: [DE 102008007113 A1](#), publication date: 06 August 2009 [[pdf](#)]
Application no: DE2008/10007113, application date: 31 January 2008
- **WIPO | PCT**
Publication no: [WO2009/095001 A2](#), publication date: 06 August 2009 [[pdf](#)]
Publication no: [WO2009/095001 A3](#), publication date: 15 October 2009
Publication no: [WO2009/095001 A8](#), publication date: 03 December 2009
Application no: PCT/DE2009/00126, application date: 30 January 2009

[I01] Method and System for Capacity and Coverage Enhancement in Wireless Networks with Relays
Shalini Periyalwar, Omer Mubarek, Halim Yanikomeroglu

- **[P02]** [US 8,478,283 B2](#) – Patent date: 02 July 2013 [[pdf](#)]
Publication no: US2008/0260000 A1, publication date: 23 October 2008
Application no: 11/664,135, application date: 29 March 2005

Provisional application no: 61/421,704, application date: 29 September 2004

○ **WIPO | PCT**

Publication no: [WO2006/034578 A1](#), publication date: 06 April 2006 [[pdf](#)]

Application no: PCT/CA2005/001475, application date: 29 September 2005