IEEE P802.11
Wireless LANs

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| Wireless Next Generation (WNG) Standing CommitteeMeeting Minutes for September-2023 Atlanta Hybrid Meeting |
| Date: September 12, 2023 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Lei Wang | Futurewei / Huawei | 2220 Central Expressway, Santa Clara, CA 95050, USA | +1-858-205-7286 | Lei.wang1@futurewei.com |
| Jim Lansford | FaraFir Consulting | Str. Academiei 12, Ap. 2, 307160 Dumbravita, Romania | +1-719-286-9277 | jim.lansford@ieee.org |

Abstract

Meeting Minutes for the WNG SC meeting held in mixed-mode with in-person meeting in Atlanta, GA, USA, and with electronic meeting access, on September 12th, 2023.

**WNG Meeting: September 12th, 2023, 8:00am to 10:00am Atlanta Time**

Chair: Jim Lansford (FaraFir Consulting)

Vice Chair & Secretary: Lei Wang (Futurewei / Huawei)

**Meeting Agenda:**

The meeting agenda for WNG 2023-September meeting is shown below, and also published in the agenda document:

<https://mentor.ieee.org/802.11/dcn/23/11-23-1346-00-0wng-agenda-for-wng-sc-2023-september.pptx>

* Call Meeting to Order
* Agenda approval
* Attendance reminder
* Documentation reminder
* Announcements
* Approval of Previous meeting minutes
	+ Minutes from July 2023 WNG Meeting
* Presentations
	+ Tuesday 12 September 2023, 0800-1000 EDT
* Plans for November 2023
* Adjourn

In addition, the detailed agenda with the presentation information is included in the agenda file, and also as shown below:

* Announcements
* Approval of Previous meeting minutes
	+ Minutes from July:

<https://mentor.ieee.org/802.11/dcn/23/11-23-1257-00-0wng-wng-meeting-minutes-2023-july-berlin-meeting.docx>

* Presentations
	+ “Machine learning meets WiFi 7: a multi-link traffic allocation-based RL use case,” Pedro Riviera and Melike Erol-Kantarci (University of Ottawa)
	+ “Dynamic Polarization Spatial Multiplexing and Beamforming: Obliterating the MIMO Paradigm,” Carlos Rios (Terabit Wireless Internet)
* Plans for November 2023
	+ Chair will make a call for presentations in advance.
* Adjourn

**Meeting Minutes:**

* Chair called the meeting to order at 8:00am Atlanta time on Tuesday, September 12th, 2023, and showed the group the agenda file.
* Chair reminded the group to record the attendance of this meeting by using the IEEE Attendance Tool.
* Agenda approval:

<https://mentor.ieee.org/802.11/dcn/23/11-23-1346-00-0wng-agenda-for-wng-sc-2023-september.pptx>

* The agenda was approved by unanimous consent.
* Chair also noted the affiliation FAQ, anti-trust FAQ, ethics code, IEEE 802.11 policies and procedures, and IEEE 802 policies and procedures.
* Chair covered the voting rules for WNG SC, being a standing committee.
* Approval of previous meeting minutes for July WNG meeting.
	+ Minutes from 2023-July WNG Meeting

<https://mentor.ieee.org/802.11/dcn/23/11-23-1257-00-0wng-wng-meeting-minutes-2023-july-berlin-meeting.docx>

* + The 2023-July WNG SC meeting minutes was approved by unanimous consent.
* Attendance:
	+ In the meeting room: ~ 105
	+ Webex attendance: 193
* Presentation #1: “Machine learning meets WiFi 7: a multi-link traffic allocation-based RL use case,” Pedro Riviera and Melike Erol-Kantarci (University of Ottawa)

<https://mentor.ieee.org/802.11/dcn/23/11-23-1579-01-0wng-machine-learning-meets-wi-fi-7-a-multi-link-traffic-allocation-based-rl-use-case.pptx>

* + Pedro Riviera presented the contribution remotely.
	+ Summary of Discussion
		- * Clarified that the use of reinforced learning is to allow learning without stored data, no supervision.
			* Clarified that the “action space” is for the agent to decide how to allocate resources and distribute traffic among multiple interfaces.
			* Clarified that the current work is a simple model / simple simulator for downlink only, no scheduling, and not accounted for a saturated channel, while this could be improved by using NS3 model.
			* Discussed why there are three links mentioned in the presentation but there are 4 listed in the performance evaluation. It is due to using different channel bandwidths.
			* Discussed the link selection criteria and clarified that the Reinforced Learning algorithms select link based on current state. It doesn’t know about congestion.
			* Clarified that the assumption is that the agent is in the cloud, and is independent, without group learning. There is no direct coordination between Access Points.
* Presentation #2: “Dynamic Polarization Spatial Multiplexing and Beamforming: Obliterating the MIMO Paradigm,” Carlos Rios (Terabit Wireless Internet)

<https://mentor.ieee.org/802.11/dcn/23/11-23-1464-01-0wng-dynamic-polarization-spatial-multiplexing-and-beamforming-obliterating-the-mimo-paradigm.pptx>

* + Carlos Rios presented this contribution in-person.
	+ Summary of Discussion
		- * Questioned and discussed multiple items, e.g.,
				+ the switching rate is at symbol rate and at symbol boundary,
				+ there is orthogonality across sequences, not spreading, so people shouldn’t view the Walsh sequences as spreading functions,
				+ how to maintain 4096-QAM with only 23 dB of polarization isolation; Orthogonality is maintained,
				+ with polarization filter, symbols are either match or dis-match,
				+ all symbols are synchronized at the transmitter,
				+ the orthogonality makes the system tolerant of imperfections,
				+ there are 32 spatial streams that are independent of antenna imbalance,
				+ polarization does not do anything for data rate and the throughput gain is from 32x32 MIMO,
				+ If the receiver can demodulate, then the receiver gets synchronization.
			* Chair encouraged the interested participants to continue the discussion offline, due to the limited time in the WNG session.
* Plans for November 2023:
	+ Call for contributions: WNG chair will issue a call for contributions before 802.11 2023-November meeting.
* Any other business: none.
* Adjourned at 9:55am Atlanta Time.