



MTT-S Society News

Promoting and Empowering the RF and Microwave Community in Costa Rica

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This article describes a recent and very fruitful MTT-S initiative in Latin America focusing on Costa Rica. Envisaged by the Membership and Geographical Activities (MGA) Committee of the MTT-S Administrative Committee (AdCom), this initiative, which was implemented by the end of 2022, aimed at developing MTT-S membership, a volunteer base, and increased engagement in MTT-S activities in Region 9 of IEEE, especially focusing on Costa Rica. The delegation consisting of the MTT-S MGA chair, Goutam Chattopadhyay, and the MTT-S Region 9 coordinator, José Rayas-Sánchez, visited San Jose, Costa Rica. The 2022 MTT-S president,



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Rashaunda Henderson, was to accompany the delegation but had to drop out at the last moment due to some unavoidable circumstances. The delegation carried the MTT-S president's message to the microwave community in Costa Rica. This article presents the rationale and goals of the MTT-S delegation, the planning for the initiative, the agenda and activities, and the outcomes achieved. Several months after its implementation, the results obtained indicate that

the initiative was very successful, confirming it as an effective strategy to promote RF and microwave-related technical activities and revitalize communities in similar emerging regions of the world.

Costa Rica has a vibrant high-tech community, including an Intel site with more than 3,800 employees (around 1,800 engineers).

The Rationale and Goals

An inspiring experience that partially motivated this particular MTT-S membership outreach took place in September 2014, when the RF and microwave community in Mexico was addressed by a set of enthusiastic MTT-S

delegates [1]. By that time, Mexico already had several RF and microwave educational programs and research groups [2], [3], [4], [5] as well as a small number of MTT-S members and just a single MTT-S Chapter [1]. That initiative led to a significant growth of MTT-S membership in Mexico and the creation of two additional MTT-S Chapters [1], and a few years later, it resulted in the first edition of the MTT-S Latin America Microwave Conference (LAMC), held in Puerto Vallarta, Mexico, in December 2016 [6].

In contrast, in November 2022, Costa Rica had no MTT-S members, no MTT-S Chapters, and practically no MTT-S activities. However, Costa Rica has a vibrant high-tech community, including an Intel site with more than 3,800 employees (around 1,800 engineers), some of them working in areas such as signal/power integrity, high-speed interconnects, power delivery networks, power integrity, postsilicon validation of high-speed computer platforms, etc., which are closely related to the field of interest of MTT-S. Additionally, the Greater Metropolitan Area of San Jose city contains 80% of Costa Rica's total population (about 5.2 million), with many flourishing technology-intensive companies as well as emerging academic and research activities on RF and microwaves [7]. Figure 1 illustrates the geographical location of this small but very progressive Central American country.

Based on all these details, with the full support of the MTT-S president, the MTT-S MGA committee decided to take a proactive outreach effort to this high-tech community of Costa Rica. The MTT-S delegation visited San Jose, Costa Rica, on 11 November 2022, with the overall goal of enhancing the presence of the MTT-S in Costa Rica, increasing MTT-S membership, and encouraging the formation of the first MTT-S Costa Rica Section Chapter, thus motivating the local microwave community to organize LAMC-2023 in San Jose, Costa Rica.

Agenda and Activities

The visit agenda, worked out in close collaboration with the local host, is shown in Figure 2. The activities



Figure 1. The MTT-S membership drive in San Jose, Costa Rica, took place on 11 November 2022. Costa Rica is geographically located in Central America.

Time	Event
9:00 am	Arrival of MTT-S representatives to Intel site.
9:15 am - 10:45 am	Meeting between MTT-S representatives and Intel team and technical leaders in related fields: <ol style="list-style-type: none"> 1. Quick round of introductions – 10 min. 2. Brief presentation of Intel representatives describing main R&D technical lines – 30 min. 3. MTT-S brief introduction (Goutam Chattopadhyay) – 5 min. 4. MTT-S in Latin America and specific proposal for Costa Rica (José Rayas-Sánchez) – 20 min 5. Open discussion – 25 min.
11:00 am - 12:15 pm	Technical presentations by MTT-S (open to Intel site and invited attendees): <ol style="list-style-type: none"> 1. NASA Technologies for Space Exploration, by Dr. Goutam Chattopadhyay, MTT-S MGA Chair, NASA-JET Propulsion Lab., California Institute of Technology, USA – 30 min (including Q/A). 2. Enhancing Signal and Power Integrity in High-Speed Computer Platforms by Machine Learning and Space Mapping, by Dr. José E. Rayas-Sánchez, MTT-S Region 9 Coordinator, ITESO – The Jesuit University of Guadalajara, Mexico – 30 min (including Q/A).
12:15 pm - 1:00 pm	Lunch and informal discussion with Intel representatives.
1:00 pm - 2:00 pm	Site tour, with emphasis on the main laboratories.

Figure 2. Agenda held during the visit to Intel Costa Rica by the MTT-S delegation on 11 November 2022.

consisted of an initial set of brief introductions and general presentations followed by two technical talks and a site tour. These activities were conceived to achieve the following objectives:

- to present the main technical and professional benefits that MTT-S offers to its members (publications, conferences, international

- Distinguished Lecturers and Instructors, local technical Chapters, educational materials, etc.)
- to get familiar with the main technical fields of interest of this region's high-tech community and to identify areas where MTT-S could provide valuable support for the engineers and other professionals

- to make a couple of technical presentations at Intel Costa Rica on two state-of-the-art MTT-S-related topics.

The Visit

After the initial introductions, the first presentation was given by the host, Patricia Vargas [see Figure 3(a)], who is the chief of staff and strategic program manager at the Intel Costa Rica Design



Figure 3. Photos from the presentations at Intel Costa Rica Design Center. (a) Patricia Vargas, chief of staff and strategic program manager at Intel Costa Rica. (b) Goutam Chattopadhyay, MTT-S MGA chair. (c) Jose Rayas-Sanchez, MTT-S Region 9 coordinator.



Figure 4. Some of the participants in the MTT-S presentations at Intel Costa Rica.

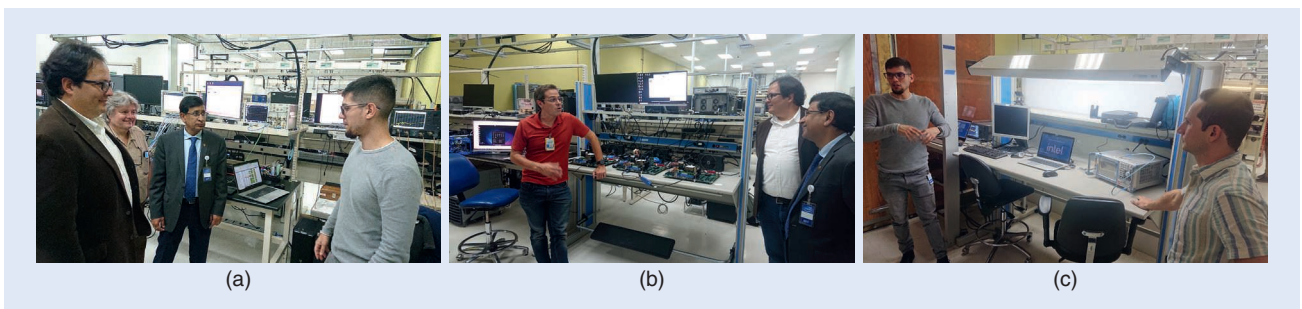


Figure 5. (a)–(c) Photos from our tour at Intel Costa Rica site labs.



Figure 6. The next MTT-S LAMC is taking place in San José, Costa Rica, on 6–8 December 2023 (<https://lamc-ieee.org/>).

Center. Figure 3(b) shows Goutam Chattopadhyay presenting the MTT-S goals, technical activities, and various offerings to its members. The status of the MTT-S in Latin America and a specific proposal for Costa Rica were presented by José Rayas-Sánchez [see Figure 3(c)]. A group photo showing some of the engineers participating in the MTT-S presentations at Intel Costa Rica is shown in Figure 4.

After lunch, the delegation toured the main industrial facilities at Intel Costa Rica and met with some of the engineering groups more closely related to the MTT-S field of interest. A selection of photos of that tour is shown in Figure 5.

The Outcomes and Final Remarks

After several months of this focused MTT-S membership drive, the following has been achieved:

- For the first time, there are now MTT-S members in Costa Rica (two senior members, five members, and five graduate student members); some of them also joined IEEE for the first time.

The status of the MTT-S in Latin America and a specific proposal for Costa Rica were presented by José Rayas-Sánchez.

- A new MTT-S Costa Rica Section Chapter has been officially formed.
- A conference application form was submitted to the MTT-S Meetings and Symposia Committee to host LAMC-2023 in San Jose, Costa Rica, on 6–8 December 2023 (<https://lamc-ieee.org/>).

This conference application was approved, and LAMC-2023 preparations are now in full swing (see Figure 6). The organizational committee of LAMC-2023 is under the leadership of Dr. Renato Rimolo-Donadio from Intel Costa Rica and the Instituto Tecnológico de Costa Rica (ITCR).

The outreach effort to Costa Rica allowed the MTT-S delegation to meet with some of the brilliant and enthusiastic local technical leaders who have great potential to get involved with various MTT-S activities and to better serve their communities. It is hoped that this initiative will encourage the sustained development and technical vitality of the RF and microwave community in Costa Rica with the continued support of the MTT-S.

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