Writing something about my personal life is always difficult. What would be interesting about it for people to read? After giving it some thought, I have decided to explain an aspect that has been fundamental for my professional success, and it is relevant for both women and men: the impact of moving. Changing a work location and going outside one’s comfort zone helps to enhance one’s academic and personal ambitions. This is the reason why I decided to explain my experiences with moving, what drove me to make key decisions, and the positive consequences.

I have moved quite a bit during my career and have always been interested in other cultures, visiting new places, and meeting different people. It all started with my master’s studies, when I went to Friedrich-Alexander-Universität Erlangen-Nürnberg in Germany to study during my final year. This short stay became longer when I decided to do my diplomarbeit at the Fraunhofer Institute in Erlangen, Germany (Figure 1). It was a very nice place; a relaxed work environment with exceptional colleagues. My project was on software development for a GPS information-based car system. I enjoyed it very much, but I also realized that developing software was not my ideal job. I wanted a career with more physical and hardware content.

Although I was offered a position at the Fraunhofer Institute, I decided to go back to Spain and find a different opportunity. Luckily, it came faster than I had hoped: I was offered a one-year position at TNO, to work in the

European Union’s research training network, millimeter-wave and microwave components design framework for ground and space multimedia network, for the analysis of phased arrays of circular waveguides. I accepted immediately, and it was certainly one of the best decisions of my life. I stayed at TNO for nearly five years, and this was how I entered the fascinating world of antennas and electromagnetics.

While at TNO, I did my Ph.D. dissertation on a European Space Agency (ESA) project on the impact of surface waves on integrated antennas. We developed planar circular symmetric-electromagnetic bandgap (PCS-EBG) arrays for reducing surface waves (Figure 2). A planar printed circuit board array with (at that time) the highest efficiency and bandwidth, was demonstrated and resulted in the 2008 H.A. Wheeler Applications Prize Paper Award [1]. On a personal note, working in The Netherlands is very different from working in Germany; in The Netherlands, people get straight to the point. It took me some time to adjust but it also showed me how important it is to be clear and direct in the workplace. During this time, I also met my husband (an experimental physicist), and from this point on, moving to a new place became a two-person problem.

By the end of my Ph.D. studies in 2016, I had a permanent position at TNO as researcher on an ESA project involving overlapped feeds with leaky wave/Fabry–Perot antennas (Figure 3) [2], which was a very comfortable situation to be in after finishing my Ph.D. (especially if one is thinking in creating a family). Even so, I wanted to explore new topics and to learn whether I could become an independent researcher. I was also still quite young, so I decided to make another very important decision in my career: to leave TNO and accept a one-year postdoc position with the Submillimeter Wave Advanced Technology Group at NASA’s JPL in Pasadena, California. I ended up staying there for nearly three years. Working in a big institution with many job opportunities was also very helpful in solving the two-person problem, as was having a very supporting husband. Again, a great decision in my life!

At JPL, I entered in the field of terahertz (THz), which exposed me to many new topics, such as quasi-optical (QO) systems, photonics, cryogenic detectors, physics, cleanroom processing, and so on. I had also the opportunity to design a quasi-optical system for the 550-GHz radar system [3], which showed the first images of concealed objects at 25 m (Figure 4). During this time, we also developed a new QO antenna based on very shallow silicon lenses [4] illuminated by a leaky wave waveguide feed with an unprecedented bandwidth-x directivity tradeoff (Figure 5). This development was recognized with the Best Paper Award from IEEE Transactions on Terahertz Science and Technology.
Working at JPL was a fantastic experience, one in which I could interact with so many excellent scientists in different fields and have access to state-of-the-art technology and lab facilities. It was certainly a life-changing experience. On the personal side, living in the United States and being immersed in its culture was both rewarding and surprising at the same time. I made many good friends from different fields who were in the same situation as me (i.e., temporary postdocs), which helped me exchange lessons and experiences and talk about future plans. On the other side, it was difficult for me to picture having a family in the United States.

Then came my third big decision: moving back to Spain instead of staying in California, which was mainly for personal reasons. I won a Spanish grant, the Ramon y Cajal, which provided me with a five-year assistant professor position in Madrid. My husband came with me and was also able to find a research position. It helped that he was a physicist and that we moved to a big city. This was good time to start teaching and supervising Ph.D. students as well as for creating a European collaboration network in the area of THz security imagers (Figure 6) [5]. I was working in a physics department, which was stimulating because of the different perspectives on electromagnetics. But more importantly, my first daughter was born in Madrid.

After a few years, a new opportunity arose: a tenure-track position at Delft University of Technology (TU Delft). A new group on THz sensing was being created in the Electrical Engineering Department, and I had the chance to be part of it from the beginning. The question then became: Should I move my family to the Netherlands? My daughter had just been born, my husband was also offered a job at a Dutch research institution, and I thought that raising bilingual, multicultural children would be good for them in the future ... so the answer was “Yes,” and I accepted the challenge, and it all worked out nicely. Currently, the THz Sensing Group at TU Delft has roughly 30 members (Figure 7), I am a full professor now, and we are working in many interesting areas.

My current professorship chair at TU Delft is on QO systems, and it has been supported by a European research grant. Thanks to this grant, we are currently developing several research areas [6]–[9], including Fourier optics analysis techniques for optimizing QO system in reception, a fly’s eye lens array for the Next Generation of wireless communication networks, scanning lens phased arrays for space applications, and millimeter-resolution radars based on photoconductive arrays, as shown in Figure 8.

Careers in the Netherlands are dynamic and high tech, the THz Sensing Group is doing very well, and the environment for raising a family is great. Indeed, my second daughter was born last year. Because of these reasons, when other interesting work opportunities have recently emerged, I decided not to move.

I think moving can be rewarding for everyone for many reasons, not only...
professionally but also personally. It is difficult to move from one’s comfort zone but, in my case, I am happy about all the times I did. I heartily advise all young researchers to move and take opportunities wherever they present themselves. And yes, as a woman, you can have it all as well—just go for it!

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