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The Globalization of LEOS

G.D. Khoe and K.A. Williams

Over its thirty-year history, LEOS has evolved into a global professional society promoting the interests and activities of a broad laser and electro-optics community. The international spread of journal authors, conference activities, chapter development, award recipients, and volunteers at all levels in the society are testament to this global representation. This article documents this globalization, reflects on the recent trends, and highlights the

local initiatives that are enabling member engagement in the global society.

The international nature of LEOS is reflected first and foremost through its membership. In 2006, while just over half of the members were located in the US and Canada (54% in the Americas), the remaining proportion is near evenly split (23% each) between Europe and Mid-East Africa / Asia Pacific. The attractions for membership in terms of dissemination,

recognition, and networking are numerous [1], with the underpinning ingredient being the international prestige which the Society has been able to garner. LEOS journals are highly respected, and this is evidenced through the high rankings achieved [2] as listed in table 1. Authors consider publications in LEOS journals to be valuable markers in their track record and a recognition of the importance of their research. Since the quality is recognized world wide, experts submitting manuscripts to LEOS journals are based not only in the United States, but also in large numbers from Canada, Europe, and Asia. Indeed corresponding authors for accepted articles in 2006 originated in approximate equal measure from the three membership regions: Americas (30%), Europe / Mid-East Africa (32%), and Asia Pacific (36%) [3].

To reflect the needs of an increasingly global technical community, the LEOS Board of Governors (BoG) has been consciously working towards globalization of the Society membership. The first of the most important observations made by the BoG has been that globalization can only be facilitated with the help of active local volunteers. A second key understanding is that the leadership structure of the Society should reflect the global interest shown in it. An important step made by the BoG in 1996 was to install three separate vice-presidents (VPs) of Membership for the Americas, Europe, and the Far East to replace the previous unitary post of VP for International Affairs. These new VP positions are assigned to local volunteers, and while regional VPs for membership matters do not provide a guarantee for successful

Rank by Impact Factor	Journal Title	Total Cites	Articles	Cited Half-life
14	IEEE Journal of Quantum Electronics	9796	200	>10.0
16	IEEE Journal of Selected Topics	4277	153	5.2
19	IEEE Photonics Technology Letter	1176	913	4.8
26	IEEE/OSA Journal of Lightwave Technology	8162	466	7

Table 1: Rankings for LEOS journals in 2005 [2]:

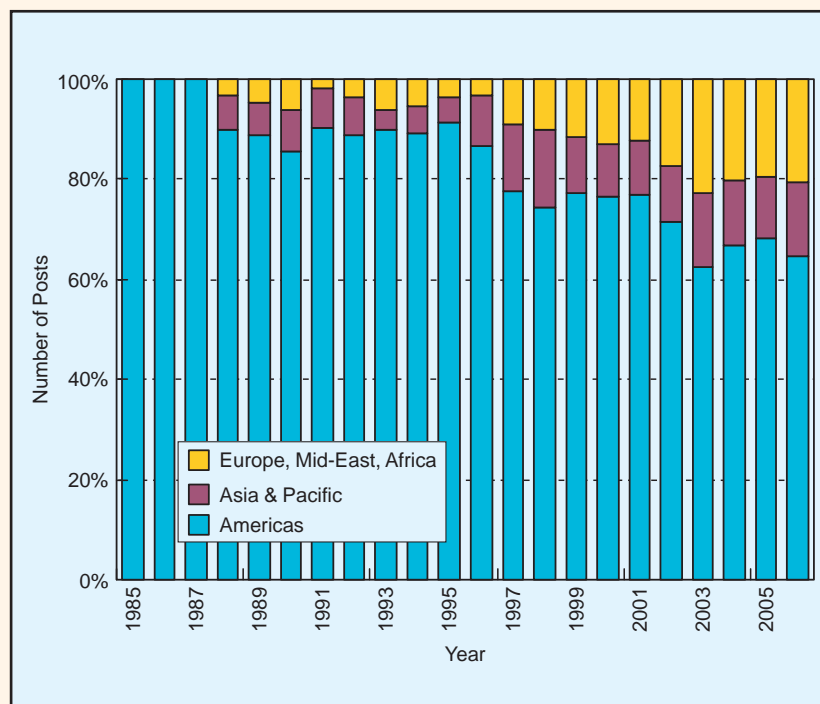


Figure 2: Proportion of senior-level volunteer posts within LEOS by region. Posts include the members of the board of governors, officers, and editorial teams of the journals.

Membership Section (cont'd)

membership development, it is a formal recognition of the importance of the globalization of membership. A significant next step was for the Board of Governors to hold meetings outside the US, with the first such meeting in Nice, France in 2000. Until then, all BoG meetings had been held in the US, causing a structural imbalance in the travel expenses between the participating volunteers. A global spread in the candidates has also been pursued for the annual elections and LEOS has now had three Presidents from outside the US, namely Professors Ikegami (University of Aizu, Japan), Melchior (ETH Zurich, Switzerland), and Khoe (Technical University of Eindhoven, the Netherlands) in 1994, 1999, and 2003 respectively with Professor Marsh (University of Glasgow, Scotland) now being President Elect. Volunteering at the senior levels of the society has evolved with increasing numbers of members from European and Asian regions participating in both society governance and on the editing teams of the technical journals. Figure 2 reflects the evolution by region of such senior level volunteering by highlighting the regional affiliations of the officers, vice presidents, BoG members, and the journal editorial teams [4].

International seeds

The impact of the new structure was soon visible, particularly in Europe, where a large number of LEOS chapters were started within the space of just a few years. This is particularly evident in figure 3, showing the number active chapters in the three membership regions. The initial US-centric membership has evolved steadily to incorporate chapters in the Asia Pacific region, with a marked increase in the number of European

and Asia Pacific chapters in the last ten years. The European chapters have been particularly successful, with chapter of the year awards in eight out of the last ten years and the largest membership

increases in seven of the last ten years [5].

The number of chapters in Europe has now begun to stabilize and the challenge for the LEOS leadership is to generate new forms of

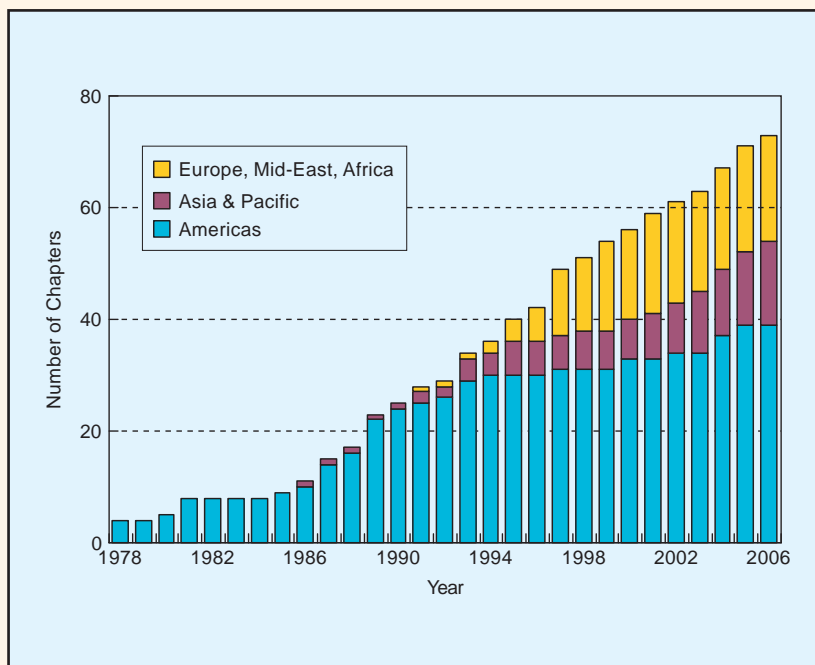


Figure 3: Numbers of LEOS chapters in the three membership regions over the history of LEOS

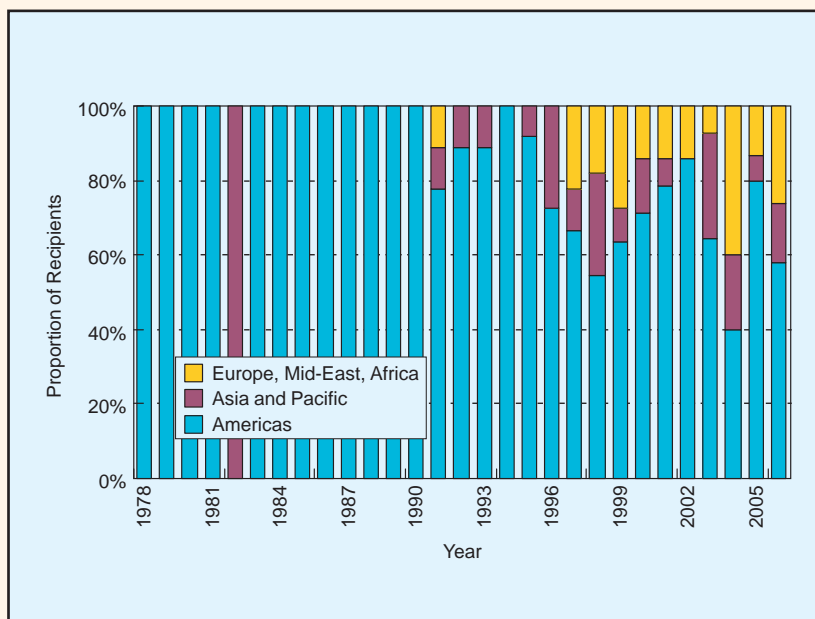


Figure 4: Recipients of LEOS awards by region

Membership Section

local nurseries for LEOS-related activities. A way to proceed may be to encourage the start of more student chapters. The student chapter at Orlando pioneered this approach in 1996 [6], with California San Diego, Novosibirsk State Technical University, and Kharkov State Technical University following suit in 2000 and 2001. The Benelux area is a further example of how an active LEOS chapter may be complemented by an active student chapter [7]. The interest of students in the Benelux was gradually stimulated by inviting students to join the board of the chapter until 2004, when the students decided to form their own chapter.

International collaboration

The leadership of the Society has also recognized the importance of collaborations with other national and international organizations active in similar areas, especially in the area of conferences. A well-known example is the Optical Fiber Conference (OFC), where LEOS has a long-standing cooperation with the Optical Society of America (OSA). In Europe, LEOS has joined forces with both OSA and the European Physical Society to organize the biannual CLEO Europe. A new collaboration was initiated in 2006 with the European Conference on Optical Communication (ECOC) to include CLEO Focus Sessions in the even years when CLEO Europe is not held, LEOS is also a technical co-sponsor of ECOC and has been gradually improving its visibility at this prime European event. Since the first LEOS participation in ECOC in 1996 at Oslo, Norway, it has become a tradition to have a LEOS Booth at a prominent place during the event, and since 2001, it has become a regular feature to hold the LEOS Workshop on Entrepreneurship on the Sunday

preceding the conference. Similarly, a LEOS Booth has been staffed at the CLEO Europe conference since the 1998 meeting in Glasgow, Scotland. A conscious decision has also been made to hold the LEOS Annual Meeting outside the US, requiring a close collaboration with local volunteers. These meetings have been highly appreciated by the local membership. Until 2001, the LEOS annual meeting was held in the US, but subsequent meetings have been hosted in such geographically diverse locations as Glasgow, Puerto Rico, Sydney, and Montreal.

Professional recognition

The achievements of LEOS members have been recognized though the presentation of awards over the last four decades. The number of awards presented by LEOS has increased from the single Quantum Electronics Award in the early eighties (with Prof Suematsu of the Tokyo Institute of Technology achieving the award in 1982 as the first Asia Pacific recipient), to a much broader range of awards [5]. Distinguished lecturer awards were started in 1984, and the William Streifer Scientific Achievement Award, the Engineering Achievement Award, and the Distinguished Service Award followed in 1991. More recently, the John Tyndall and Aron Kressel awards have become annual features. As the membership has become more international, so have the award recipients. Figure 4 shows an increasingly international proportion of award winners. In the first ten years, they were primarily from North America, but as the society has become more global, the Asia Pacific region accounted for 9% over the period 1987-1996, increasing to 14% over the period 1997-2006. Over the same periods, European award winners have accounted for 1% and 20% of the total, reflecting a significant engagement with the society in recent years. However, these propor-

tions still fall short of those that might be anticipated simply from the geographical distribution of the membership and the authorship of the society's journals.

Conclusions

LEOS global membership has evolved considerably over the past ten years, with journal authors coming near equally from the three membership regions. However, the membership is still predominantly located in the Americas. The concerted effort by the BoG to globalize has led to increased numbers of chapters in Asia and Europe that are proving to be particularly active. Increasing numbers of European and Asian members are also engaging at the senior levels of the society, and the society as a whole is engaging more with International conferences and meetings. A lag still exists in the proportion of European and Asian researchers being awarded the most prestigious LEOS prizes, but this may reflect reluctance in some regions to nominate colleagues. Overall, LEOS has evolved into a truly global professional society.

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Membership Section (cont'd)

remaining percentage is of unknown origin.

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G.D. Khoe received the degree of Elektrotechnisch Ingenieur, cum laude, from the Eindhoven University of Technology, Eindhoven, The Netherlands. In 1973 he moved to the Philips Research Laboratories to start research in the area of optical fiber communication systems. He was appointed full professor at Eindhoven University of Technology in 1994 and is currently chairman of the Department of Telecommunication Technology and Electromagnetics. He has more than 40 United States Patents and has authored and co-authored more than 300 papers, invited papers and chapters in books.

His professional activities include a number of journal and conferences activities. He is also closely involved in the Research Programs of the European Community and in Dutch national research programs. He has served in the IEEE/LEOS organisation as European Representative in the BoG, VP Finance & Administration, VP Membership, BoG Elected Member, President and member of the Executive Committee of the IEEE Benelux Section. He was founder of the LEOS Benelux Chapter. He has been an IEEE Fellow since 1991, OSA Fellow since 2006 and received the MOC/GRIN award in 1997.