

IEEE life members newsletter



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Memories and Milestones 2014–2015

Joe Cruz, Chair, IEEE Life Members Committee

This is my last article as chair of the IEEE Life Members Committee (LMC). It has been an honor and a privilege to serve you—the Life Members (LMs) of IEEE. Please allow me to highlight a few of my favorite memories from my time as chair.



IEEE Life Members
Committee Chair
Joe Cruz

Elevation of LMs to LSM grade. Each year, between 2,500 and 3,500 Members attain the status of Life Member. In previous columns, I noted that more than 65% of those that attain the status of LM do so at the Member grade, and only about 25% are recognized at the Senior Member grade. Throughout my tenure, I encouraged those at the Member grade to examine their career records to determine whether they qualified for elevation to Life Senior Member (LSM) grade. Many of you have done so and are now LSMs—congratulations! For those who have not yet applied for elevation, I urge you to check out the requirements at <http://www.ieee.org/senior-member>.

Annual review of the LMC strategic plan. In 2013, my predecessor as chair, Lou Luceri, tasked Ralph Wyndrum and me with reviewing the committee’s strategic plan from 2006 and recommending revisions. I am proud to say that our recommendations were adopted, and the committee approved a rolling five-year strategic plan. The committee has continued to review the plan annually and revise it as needed. To read the details of the strategic plan, visit http://www.ieee.org/societies_communities_geo_activities/life_members/strategic_plan.html.

Creation of a New LM Affinity Group Achievement Award. A new Life

Members Affinity Group (LMAG) Achievement Award was established in 2015. The new award provides an opportunity to recognize an LMAG for its leadership and innovation in the promotion of LM activities and/or the Life Members Fund (LMF). The first award was given this year to the IEEE Boston Section LMAG (see page 3)—well done!

Commissioning of the history of the LM grade. In 2014, the LMC

commissioned the preparation of the history of the LMC. Under the guidance of the IEEE History Center, professional historian Andrew J. Butrica chronicled the years 1884–2010 and assembled a 160+ page history. I urge you to read the summary found on pages 13–15 of this issue and learn about the profound impact LMs and the LMC have had on IEEE and its ability to fulfill its mission to advance technology for the benefit of humanity as a result of the philanthropic investments made by the LMF—all thanks to members’ charitable support.

Expanded size and coverage of the IEEE Life Members Newsletter.

The newsletter is highly regarded by IEEE LMs. During the last couple of years, the LMC has worked hard to enhance and expand its contents by increasing the number of stories focused on history, local LM activities, and the programs supported by the IEEE LMF. The newsletter welcomes articles, categorized as “Tales from the Vault,” that share your personal involvement with technological achievements that turned out to be historically significant. Past issues are available on the LMC’s website at <http://www.ieee.org/lmc>.



Reinvented IEEE Foundation/Life Members Fund Grants Program. In 2015, the LMC partnered with the IEEE Foundation to reinvent the IEEE Foundation/LM Fund Grants Program to focus exclusively on supporting projects of IEEE units within a pre-defined theme of strategic importance to IEEE. Sixty grant applications were submitted in response to this year's theme: *Increase the understanding of technology and its critical role in meeting global challenges and improving the human condition.* Several grants are expected to be awarded for projects beginning on 1 January 2016. Approximately one-half of the funding

that is being provided will come from the IEEE LMF, thanks to the generous support of many IEEE LMs and friends. To learn more about the Grants Program, visit <http://www.ieeefoundation.org/grants>.

The LMC continues to encourage all LMs to remain engaged through activities of LMAGs. Just as importantly, the LMC urges you to continue your support of the funding of focused projects through the IEEE LMF of the IEEE Foundation. These IEEE projects enable programs that improve access to technology, enhance technological literacy, and support technical education and the IEEE professional community.

IEEE Launches Collabratec Online Networking Tools

I first heard of the IEEE Collabratec initiative from the IEEE New York City (NYC) Section chair, who asked if I would be interested in volunteering to be a NYC community moderator. I've been deeply concerned over the shocking decline in Chapter activities in our Section and a growing lack of interest over the past 5+ years. This Spring, I decided to see if IEEE Collabratec would be a vehicle to get local Members more involved.

Launched in 2015, the web-based system (at ieeecollabratec.ieee.org) features a suite of online tools that allows technology professionals around the globe to network, exchange ideas, collaborate, create, and discover new career opportunities. I really admire the development approach taken with IEEE Collabratec; it started with a pilot containing a constrained number of communities and a limited feature-set, and it obtained user feedback throughout the development process. IEEE Collabratec is an open platform, accessible to members and nonmembers, and allows users to attach third-party services (such as Google Hangouts).

Although I'm a Life Senior Member, when I'm not sailing, I'm still very much engaged in consulting engineering, segueing from land-mobile radio systems engineering to embedded systems engineering and the Internet of Things (IoT). Here is how I have found the system to be useful so far.

Networking: I have used the system quite well to discuss problems related to the security of embedded systems and software used for the IoT, to ferret out which integrated development environment tools are best to use for ARM processors, and to trade ideas on the most flexible and efficient ARM processors. This was done by reaching out and networking with practitioners in the business. I have also met some very interesting folks along the way.

Interest Groups: Having served as chair of the IEEE Communications Society's NYC Chapter for three years, I am keenly aware of the health and goings-on in this

Chapter. So I formed a private workspace (private group), inviting others (including the current chair) to join and share ideas on solving Chapter problems, suggesting topics for technical sessions, and discussing the election of new executive committee members. I formed another private group of my consulting associates and interns that we use to collaborate on writing proposals, preparing engineering reports, and general coordination tasks. I also formed a separate private group of practitioners in the field of land-mobile radio engineering. These have all worked well.

Activities: I like to peruse upcoming events to plan on attending those of interest. These can be local to your community or anywhere on the planet.

Questions: This is a fun part of the system. Here you can pose a question to your community...any kind of question (mind you, we moderators will take down inappropriate items). Anyone can either expand on your question or comment on it. There are many other functions available to the user; I've just scratched the surface myself.

Some functions include:

- search features to find others based on interests, Societies, membership, and grade
- updates on resources, events, and experts that match and advance your professional interests or career pursuits
- access to research and collaborative authoring capabilities integrated within your professional networks (even a suite of tools for managing your own personal online library that's accessible virtually anywhere—even on a sailboat).

I have experienced a few challenges getting to know the platform, but the best way to learn the system is to read the help aids and just dive in and start working. IEEE Collabratec offers a users group community, where questions can be asked about the platform and timely responses are received.

—Warner Sharkey

Life Member Technical Tour Highlights IEEE Milestones

IEEE Milestones celebrate technological breakthroughs or turning points, around a number of which the IEEE Life Members Committee (LMC) has organized technology-themed tours. An IEEE LM Technical Tour was held in Europe 7–17 May 2015, with stops in France, Switzerland, and Germany. The tour included visits to IEEE Milestones and related museums, as well as historical heritage sites in Paris, Geneva, and Munich.

Celebrated IEEE Milestones included the pioneering work on the quartz electronic wristwatch, with a visit to the International Watch Museum in La Chaux-de-Fonds, and CERN experimental instrumentation, with a technical visit to CERN. Some of the other technical-related stops included ANFR Laboratory, the BMW Museum, and the Technical University of Munich. Tour participants also enjoyed the culture of the cities visited, including locations such as Notre Dame Cathedral, the Eiffel Tower, Evian Les Bains, Alte Pinakothek, and Obermmergau.



The LM Technical Tour group poses for a group photo during its trip to Europe.

The LMC is currently evaluating sites for future IEEE Milestone Tours, which will be announced in future editions of the *IEEE Life Members Newsletter*.

Boston LMAG Scores Inaugural Achievement Award

The IEEE Life Members Committee (LMC) is pleased to announce that the IEEE Boston Life Member Affinity Group (LMAG) is the first recipient of the IEEE Life Members Affinity Group Achievement Award. The Boston LMAG was recognized “for fostering an IEEE Life Members Community that communicated the history of technology, new developments, and current issues of global significance.”

The Boston LMAG held a number of events throughout 2014, engaging LMs from the Boston area with varying topics for their talks, including technical, historical, and financial subjects. Events included talks on global warming, elderly and estate planning, the 60-year history of the Air Force Cambridge Research Laboratory, and technological advances including radar and phased array antennas. Attendees for these discussions also included students. The Boston LMAG also produced a 60-min video on climate change and distributed it to television

stations, thereby increasing the impact of its activity on the community.

Having a wide range of activities, including nontechnical and technical speakers, is a great way to engage with the LMs and retirees in your area. Those of you who have an LMAG in your area may want to consider expanding your activity topics and invitation base. Including students is a great way to build relationships and to mentor students.

The LMC believes that keeping LMs active and engaged is a key component to the success of the IEEE in local activities. This engagement can be conducted through the local Section and/or technical Chapter but even more so through LMAGs, which present direct activities of interest to LMs.

The IEEE Life Members Affinity Group Achievement Award is given annually to one LMAG to recognize those substantive projects or achievements that have left an undeniable imprint on the fabric of IEEE LM operations or the IEEE Life Members Fund.

The Volta Battery Is a Commemorative Coaster

In 1799, Alessandro Volta developed the first electrical battery, known as the voltaic cell, which consisted of two plates of different metals immersed in a chemical solution. Volta's development of the first continuous and reproducible source of electrical current was an important step in the study of electromagnetism and the development of electrical equipment. The naming of the unit of electric potential, the volt, honored Volta's work.

The IEEE North Italy Section dedicated Volta's electrical battery invention as an IEEE Milestone in Electrical Engineering and Computing in Como, Italy, in September 1999. The IEEE Milestones commemorative plaques are at both the Tempio Voltiano, a museum in Como devoted to Volta's achievements, and at Volta's room at Pavia University in Italy.

To celebrate this important milestone, those who donate US\$125+ specifically to the Life Members Fund (LMF) of the IEEE Foundation beginning in October 2015 through September 2016 will receive the limited edition coaster depicting Volta's Electrical Battery.

Volta's Electrical Battery is the ninth and final coaster in a series of limited-edition coasters commemorating various



Volta's Electrical Battery is the ninth and final coaster in a series of limited-edition coasters commemorating various historic IEEE Milestones

historic IEEE Milestones. The first eight depict the Invention of the First Transistor, Telstar, the Panama Canal, Japan's Bullet Train, the ENIAC computer, the Atom Smasher, Maxwell's Equations, and the Landing of the Transatlantic Cable. Complete your limited-edition set of coasters. Previous years' coasters are also available for a US\$125 donation each. Visit ieee.org/donate for more details.

The LMF provides grants to new and ongoing projects that are beneficial to potential engineers and engineering students. Your gift will both preserve the memory of Volta's Electric Battery and support future technological innovations.

The IEEE History Committee established the IEEE Milestones in Electrical Engineering and Computing Program during the centennial year as an ongoing means to honor and commemorate significant technical achievements in the history of IEEE fields. For more information, e-mail donate@ieee.org.

Donors who receive low-cost articles with a fair value exceeding the U.S. IRS threshold will be notified that the tax deductible amount of their charitable gift(s) have been reduced by the fair value of the items.

Planned Generosity

As Americans age, baby boomers are retiring and the wealth that they have accumulated over the course of a lifetime is being transferred to their heirs. This transfer is considered the largest of its kind to date—estimated at more than US\$10 trillion. This massive transfer represents incredible opportunities to structure gifts that help lessen the tax burden. Nonprofits stand to benefit enormously from this phenomenon. It is important that nonprofits such as the IEEE Foundation are prepared to take advantage of this opportunity.

If you've been even peripherally involved in philanthropy, you've likely heard the term *planned giving*. Yet few among us are well versed in the basic components that make up this complex area of philanthropy. A planned gift is typically defined as a gift that is made from accumulated wealth. These gifts, by design, are not intended to come from current income.

Though planned giving may result in tax benefits, most important is the donor's interest in advancing the mission of the IEEE Foundation. Without this element, it is unlikely that a planned gift will come to fruition.

Though planned gifts are usually considered gifts that will be made at some point in the future, some are

actually of an immediate nature. Gifts involving real estate or appreciated securities and distributions from IRA holdings fall into this immediate category.

Other planned gifts are of a deferred nature. The most common of these types of gifts are made via bequests. Annuities, charitable remainder trusts, unitrusts, wealth replacement trusts, etc. are other examples of deferred planned gifts. Through these vehicles, the IEEE Foundation will benefit at some future time.

Periodically, the IEEE Foundation will provide information regarding planned giving that may be of interest to you or a loved one. Given the complex nature of some of these instruments, it is always recommended that you consult your own tax, finance, and legal advisors.

Should you have questions regarding the information provided herein or questions regarding planned gifts in general, please contact Stan Retif of the IEEE Foundation at s.retif@ieee.org.

—Stan Retif
Chief Development Officer, IEEE Foundation

Donor Profile: Life Member's Reach Extends Far and Near

David M. Weiss joined the IEEE in 1969 and after realizing the benefits offered by the organization, he knew he would be a member for life. Weiss chairs the IEEE New York Section Technology Management Council and is the New York Section's representative to the Metropolitan Engineering Societies Council. The programs that interest Weiss most are the IEEE Foundation Signature Programs. He supports high-level initiatives that promote engineering activities and standards that would contribute to the betterment of the world—such as the IEEE Foundation Signature programs.

Weiss donates to the IEEE Life Members Fund (LMF) of the IEEE Foundation, which supports the activities of interest to Life Members, potential engineers, and engi-



Weiss is a collector of the IEEE Commemorative Coaster series.

neering students. The IEEE Life Members Committee annually releases limited-edition pewter coasters for a donation designated to the LMF. Weiss is a big fan and collects all of the coasters in the series. The coasters each commemorate a different event from the IEEE History Center's IEEE Milestones in Electrical Engineering and Computing program ranging from the Tokaido Shinkansen to the Panama Canal electric and control installation of 1914.

“Electrical and electronic engineering as disciplines play a fundamental and strategic role in the progress we are making today,” says Weiss. He adds that with the help of the IEEE Foundation, “IEEE will continue to lead the way in the development and application of these technologies in the future.”

IEEE Life Members Fund Helping to Power-Up Students' Excitement about Computing

The IEEE Life Members Fund of the IEEE Foundation is helping to encourage the next generation of computing professionals through its support of a project to make free, high-quality computing education resources available to pre-university teachers and students worldwide. Thanks to the grant from the IEEE Life Members Fund, the IEEE Educational Activities Board and IEEE Computer Society have joined forces to develop new lesson plans that will help educators introduce students to essential computing concepts in fun and engaging ways.

To accomplish this goal, the project brought together IEEE volunteers and professionals with expertise in computing and pre-university education. The team felt that it was important to develop lessons that would introduce pupils to fundamental activities of computing and facilitate critical thinking, creativity, and active problem solving skills. “More and more government and school bodies are seeing the value of adding computational thinking in school curricula. This so far has been a challenge to school teachers,” says project leader, IEEE Senior Member Liz Burd. “Thus, these plans will help bridge the skills gap and help school kids to

understand these tricky topics through solving fun problems.”

The outcome of the team's effort is the creation of ten new computing education lesson plans designed for students ages 8–18. The lessons cover core computing concepts such as encryption, artificial intelligence, concurrency, networking, and computer graphics, to name a few. To ensure that the materials are accessible to educators all over the world, a number of the lessons are designed to introduce topics in an “unplugged” fashion, without requiring access to devices or the Internet.

In an effort to create enduring learning experiences that are appropriate for all different types of learners, each lesson is designed to teach computing concepts in a novel way, through interactivity and collaboration with peers. For example, in one lesson, students use chopsticks in a kinesthetic exercise that teaches about concurrency. In another activity, students are invited to create a “bitmap mural” in the hallway of their school. In yet another lesson, students employ the laws of Boolean algebra to create their own magical worlds.

Each lesson includes everything an educator might need to successfully implement the activity, including educational objectives and outcomes, background information, step-by-step instructions, worksheets, Internet connections, and a list of recommended reading. All of the lessons are designed to be low cost and employ everyday materials, as opposed to kits, to make them affordable to the average educator. The lessons are also aligned to relevant national education standards such as the Computer Science Teacher Association's K-12 Computer Science Standards, Next Generation Science Standards, and Common Core State Standards for Mathematics. The lessons were made available in October 2015 on IEEE's computing education website TryComputing.org (www.trycomputing.org) as well as its sister site TryEngineering.org (www.tryengineering.org).

IEEE TryComputing.org also features tools and opportunities to support and encourage students in computing. A handful of lesson plans exist currently on the site on topics such as programming a computer game and learning about sorting algorithms. The addition of the newly developed lesson plans will double the current collection on the site, covering a wider breadth of age ranges and topical areas. It is anticipated that between the two sites, the lessons will be accessible to over 2 million unique visitors per year. Visitors to these sites typically come from the United States,



Each lesson is designed to teach computing concepts in a novel way, through interactivity and collaboration with peers.

China, France, the United Kingdom, Germany, Japan, India, Canada, and scores of other countries.

Elizabeth Kurzawa, senior program manager, Educational Outreach, shared, "We hope that this project will make resources for introducing computing into the classroom within reach for educators, and that the materials will make computing relatable and motivating for students." Initial educator feedback on the lessons has been positive, but the team will monitor usage of the materials and use additional input from educators to continuously enhance the offerings.

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IEEE Foundation



IEEE and HKN—Perfect Together

IEEE–Eta Kappa Nu (IEEE–HKN) is the honor society of the IEEE. HKN was founded in 1904 on the campus of the University of Illinois, Urbana-Champaign. The vision of the founders was to create an organization to both recognize the scholastic success of students and to help electrical engineering graduates find employment and support in their careers. The guiding principles remain the same—an invitation to join HKN is an early recognition of success, based on the scholarship, attitude, and character of its members.



volunteer efforts to expand IEEE–HKN worldwide, which is one of the goals of the merger. Early indicators show that students joining IEEE–HKN have a higher membership retention rate. The merger of IEEE and HKN has created increased recognition among students and professionals.

IEEE–HKN Chapters and IEEE Student Branches have the opportunity to work together on almost all projects, based on the structure that works best at their university. IEEE Sections and Regions are encouraged to work with their local IEEE–HKN Chapters to foster the relationships among all parts of IEEE.

IEEE and HKN officially merged in 2010, and this year we celebrate five years as IEEE–HKN. The IEEE and HKN have a long history of cooperation—sponsoring joint programs, shared memberships, and a commitment to advancing the engineering profession and offering educational opportunities.

To be invited to join, students (both undergraduate and graduate) must meet strict academic criteria and make a commitment to work with their school Chapter. School Chapters are established under rigorous guidelines and approved and chartered by the IEEE–HKN Board of Governors. To learn about the criteria for students and Chapters, visit www.hkn.org.

Professionals may also join IEEE–HKN, either by invitation of an established active school Chapter or by sponsorship from an IEEE–HKN member, subject to approval by the Board of Governors and based on the candidate's meritorious work in an area that falls within one of IEEE's fields of interest.

All students inducted into IEEE–HKN become IEEE members. All professionals inducted must be or become IEEE members; both pay a one-time fee to IEEE–HKN. The designation is lifetime—once you are inducted into IEEE–HKN (or HKN), you are always HKN.

IEEE–HKN has established 236 Chapters around the world; currently, 182 Chapters are active. Eight of these chapters are outside Regions 1–6 and are the result of

IEEE–HKN has a pilot project in place to work with IEEE Technical Activities Board Societies and all technical groups. If your group is interested in connecting with IEEE–HKN, you are encouraged to contact IEEE–HKN Director Nancy Ostin at info@hkn.org.

IEEE–HKN also produces *THE BRIDGE* magazine. Digitally published three times a year (February, May, and October), it is e-mailed to lifetime subscribers and current members. It is also available as open content on the IEEE–HKN website at www.hkn.org. *THE BRIDGE* has been the official publication of HKN since 1909. Each issue features a technical theme, Chapter news, a Society spotlight, member profiles, and much more.

Currently, IEEE–HKN has contact information for 32,000 people; it is estimated that there have been over 200,000 people inducted. If your IEEE membership card or record does not reflect your HKN status, please contact us to verify and to add IEEE–HKN to your profile (a member cannot self-service this option). You can submit our alumni reconnect form at <http://fs25.formsite.com/ieevcep/form14/index.html>.

To learn more about IEEE–HKN, visit www.hkn.org. Questions can be directed to Nancy Ostin, director, IEEE–HKN, at n.ostin@ieee.org. IEEE and HKN truly are perfect together!

Renovation and Expansion of IEEE Archives Is Complete

IEEE Life Members (LMs) have played a huge role in shaping IEEE's institutional history. Their long careers and service to the organization encompass a set of invaluable and unique knowledge. The IEEE Archives is one of the IEEE History Center's most important activities in preserving the history and institutional memory of IEEE. The archives' main function is to act as a permanent repository for institutional records. The oldest documents in the archives date back to the American Civil War. All material in the archives is on a permanent retention schedule, and the IEEE History Center fully intends that the collections be preserved for another 150 years and beyond.

The History Center is able to use these documents as an information source for historical questions and routinely handles reference and research requests. One of the most recent projects involving research in the archives is Andrew Butrica's history of the IEEE Life Members Committee and Life Membership, published in early 2015.

The archives were formally established by the IEEE History Center as a way to prepare for IEEE's centennial in 1984. The History Center was tasked with assembling an archive, piecing together various documents and collections from various parts of the organization. Since the centennial, the archives have acted as a central

repository for all of IEEE's historical records. Over the years, the size of the collections has expanded to approximately 15 m³ by 2015. The initial space allocated for the archives at 445 Hoes Lane in Piscataway, New Jersey, was a small room on the conference floor, and the collections eventually outgrew the space. With the help of IEEE Facilities, the archives space has been significantly renovated and expanded.

The room in which the archives are stored has been completely redone, both increasing the physical area and installing new shelving units. As a result, the amount of potential space for collections has approximately doubled, which allows the History Center to further expand the collections. For the past several years, the archives were extremely cramped with very little space to integrate new materials, and now the new space allows for easier access, cataloging, and organization.

Additionally, the previous archives space had climate-control conditions that were less than optimal. The only form of moisture control was a mobile dehumidifier unit that had to be manually changed every couple of days. IEEE Facilities has installed a state-of-the-art HVAC system providing appropriate climate-control conditions to the collections during all hours of the day, ensuring their long-term survival.

The archives has many unique items of historical interest, including Nikola Tesla's applications to the American Institute of Electrical Engineers (AIEE) for admission and transfer to the grade of Fellow, a 1915 canteen from AIEE President Comfort Avery Adams, and Elihu Thomson's Edison Medal certificate. Several collections, such as the papers dealing with the merger between AIEE and the Institute of Radio Engineers to form IEEE, have been



From left: Michael Geselowitz (IEEE History Center senior director), Vaishali Damle (managing editor, Proceedings of the IEEE), Jim Prendergast (IEEE executive director and COO), and Karen Galuchie (IEEE Foundation executive director). (Photo by Carrie Loh.)

digitized and posted on the Engineering and Technology History Wiki (<http://ethw.org>).

To commemorate the reopening of the archives, the IEEE History Center with the IEEE Foundation held two dedication ceremonies, one for IEEE staff on 16 September 2015 and one for donors in November. Attendance was far beyond expectations.

If you would like to make an appointment to see the archives or have a research question the IEEE History Center may be able to help you with, please e-mail Nathan Brewer at n.w.brewer@ieee.org

—Nathan Brewer
IEEE History Center

Transform Lives while Confirming Your LM Profile

The IEEE Life Members Fund (LMF) was established in 1944 by the American Institute of Electrical Engineers to collect volunteer dues payments from “members-for-life” who no longer had to pay dues. In 1973, the LMF was transitioned to the IEEE Foundation and began depending on the altruism and generosity of IEEE Members and friends to enable a robust set of initiatives of interest to LMs, potential engineers, and engineering students.

As another year comes to a close, take the time to reflect on how your IEEE membership has influenced your career and enhanced your opportunities. LMs continue to receive the same benefits that are available to all IEEE Members, without the expense of membership.

A donation to the LMF is a way to “pay it forward” and commit to our important work. Your donations support activities such as exciting students about science, technology, engineering, and math; empowering young minds to pursue careers in IEEE fields of interest; preserving the legacy IEEE members helped create; encouraging LMs to stay active in IEEE; and much more.

You may choose to designate your donation, in any amount, to the LMF through the enclosed reply envelope, online at ieee.org/donate, or as you confirm your LM profile and membership to IEEE. As a special thank you for your support, a donation of US\$75 entitles you to receive an LM pin; US\$125 entitles you to receive the 2015–2016 limited edition commemorative coaster celebrating Volta's electrical battery; and for US\$200, you will receive both the LM pin and LM coaster.

There is so much more that we can accomplish together to transform lives through the power of technology and education. Visit ieeefoundation.org and learn more about

- maximizing your donation through your employer's matching gift program
- donor recognition groups such as the **IEEE Goldsmith Legacy League** for planned gifts
- how to receive timely updates of our activities on Linked In, Facebook, and Twitter
- making your gift electronically at ieee.org/donate.

Life Member Activities in Region 8

The Life Members (LMs) in the countries of Region 8 mainly consist of the first Sections to be founded, mostly in Western Europe. The great majority of Region 8 members currently reaching retirement age do not immediately qualify for Life Membership due to too few years of membership. In most cases, they joined IEEE midway through their career, whereas today, members tend to join as students or young professionals. Rapid growth in the number of LMs in many Sections can be expected over the next decade and beyond. That is why it is important for Region 8 to create more LM Affinity Groups (LMAGs) to retain the interest of its older members while they are still active in IEEE.

At present, there are 11 LMAGs: Croatia, France, Germany, Greece, Hungary, Israel, Italy, Slovenia, Spain, Switzerland, and the United Kingdom and Ireland. There are several other Sections that have sufficient LMs to form a viable LMAG, and we aim to ensure that some of these will become active soon.

One of the most popular areas of interest for LMs in Region 8 is the history of technology. Technical meetings and conferences on this topic, including IEEE Milestones events, have been organized in the past decade. Two examples demonstrate the level of commitment that LMAGs are able to give to the organization of major events.

- The HISTELCON 2015 Conference held in Israel on 16–20 August, covering the history of high technologies and their sociocultural contexts, was organized and supported by the Israel Section LMAG. There were 120



An IEEE Milestone plaque mounted at London's Abbey Road Studios.

registered attendees and 40 part-time attendees. The final day was dedicated to the 1955–2015 Historical Perspectives on Israel High-Tech. The fifth HISTELCON will be held in Kobe, Japan, in 2017.

- The dedication of the IEEE Milestone Plaque in London on 1 April to commemorate the invention of stereophonic sound reproduction by Alan Blumlein in the 1930s was organized by the U.K. and Ireland Section LMAG. Over 100 guests attended the unveiling ceremony, including many engineers from the audio recording industry. There are now over 30 IEEE Milestones in the Region, with more nominations expected this year.

Other, more informal examples of LM activities include mentoring students and young professionals, giving talks about career experiences, advising young volunteers on how to manage people, and how to organize events.

Retired members often wish to keep technically alert and well informed. Several LMAGs hold technical meetings for this purpose. The Israel LMAG holds "Technical Fridays" events that include technical presentations that attract approximately 200 attendees. It also celebrates the lifetime achievements of its members with "Homage to Founders" events that provide good opportunities for retired members to socialize.



LM recipients of IEEE Certificates of Appreciation at HISTELCON.

The Croatia LMAG promotes collaboration with other operational units in the Section, such as Chapters, Student Branches, and Affinity Groups. It has shown that this is an effective way of leveraging the enthusiasm of small groups of volunteers, such as LMs, that are commonly found in Region 8 Sections. Collaboration across borders has also been feasible in Sections such as Switzerland, where small geographical distances separate LM groups in neighboring Sections.

One way of engaging volunteers in LM activities is to involve members who are retired or approaching retirement but who are not yet LMs. One of the new, high-priority initiatives in Region 8 this year is to explore how this might become a model for developing LMAGs across the Region. It could also become an effective way of retaining the interest and commitment of older members

who otherwise would simply drop their membership when they retire. There is an urgent need for Sections to provide a more compelling range of activities aimed at engaging retired members.

The future prospects for LMAGs in Region 8 depend vitally on meeting the challenge of how to develop effective LM engagement. There is considerable potential for growth for both the number of LMs and the formation of new LMAGs. The lessons learned from the experience in other Regions show that the first priority is to recruit experienced volunteers able to create attractive programs of activities that would appeal to IEEE Members as they reach retirement.

—Charles Turner
Region 8 Life Members Coordinator

IEEE Student Members Get “Mad” for Mobile Apps

IEEEEmadC is a global competition tailored for IEEE students that will be organized for a third year in a row from December 2015 until May 2016. IEEEEmadC is only two years old, but we are already gaining attention in the IEEE community. In 2013, we had the idea about the contest, and, after we created the budget, we started to search for sponsors and funds for its implementation. At the end of 2013, we received the first IEEE Foundation grant, which was the main trigger for the organization of IEEEEmadC. First, it was organized at the Region 8 level only, to get the proof of concept. Given its huge success, we decided to include all IEEE Regions, and, at the end of 2014, we launched IEEEEmadC globally, with grant support from the IEEE Life Members Fund of the IEEE Foundation.

The main goal of IEEEEmadC is to increase awareness of the possibilities in the mobile application development field among students by motivating them to learn mobile application design and development for any available platform. Furthermore, it provides additional competitive activities for IEEE students and inspires other students to join the IEEE. By competing, students focus on developing their technical, social, and team skills. The uniqueness of this competition is that only IEEE Members can compete, and the developed mobile applications must be in sync with the main IEEE focus of “Advancing Technology for Humanity.” Therefore, developed applications should focus on technology, humanity, science, education, or the IEEE community.



IEEEEmadC gets students crazy about mobile app development.

IEEE Student Members can compete as individuals or in teams of up to three people. Each team can submit up to three different applications. IEEEEmadC is organized in four main stages (education, idea, development, and judging) within six months. During the education and idea stages, participants are invited to submit the concept for their applications. Afterward, during the development stage, participants submit their working application along with screenshots of the application, a short video highlighting its features, a brief technical description, and a link to the application if it is published

online. During the judging stage, apps will be scored by a panel of judges based on four main criteria: user interface design, user experience, usefulness, and availability.

The IEEEEmadC organizational team, called the “Mustache Team,” is truly thrilled to see that students share the same enthusiasm about learning programming languages, mobile application development, and the IEEEEmadC contest as we do! More information about IEEEEmadC can be found at <http://ieeemadc.org/>. You can follow us on IEEEEmadC’s official Facebook page at www.facebook.com/IEEEEmadC. We invite all IEEE students to learn how to develop useful mobile applications, submit them to IEEEEmadC, and potentially win great prizes. And, of course, do not forget to have fun while doing it.

—Josip Balen
IEEEEmadC father

Santa Clara Valley Is TOPS for Students

Teaching Opportunities for Partners in Science (TOPS) of Santa Clara Valley (SCV) is a science, technology, engineering, and mathematics (STEM) program being conducted under the auspices of the IEEE Santa Clara Valley Life Members Affinity Group. It is an outreach program using volunteers (the “partners”) for 1) assisting teachers in grades K–8 with the preparation and delivery of science and engineering lessons in the classroom, 2) providing content knowledge to teachers when needed to teach quality science and engineering lessons, 3) motivating students with career and educational models and information, and 4) educating families through after-school family science events. The operation is based on a program that began in 1993 at the San Joaquin County, California, Office of Education with three partners at three elementary schools. That program now has 33 partners at 32 schools in a five-county region in Central California. In 2000, a new TOPS Center was added in Livermore, California, to capitalize on the many retired scientists and engineers in the area, who then served the elementary schools in the Livermore Unified School District.

The outreach program began with partners who were retired scientists and engineers. Currently, the source of volunteers includes scientists and engineers who are employed or on leave, as well as retired. Most partners volunteer to serve a minimum of a half-day per week during the school year; however, the schedule can be flexible to accommodate differing needs of the partners. Volunteers typically receive two to three days of training

before being matched with a teacher-partner to work with students. The training is less focused on the preexisting content knowledge of the retirees and more on pedagogical questions and research on what we know about how children learn. In addition, selected volunteer retirees relate their experiences in the TOPS program.

TOPS of SCV offers retired scientists and engineers the opportunity to use their technical knowledge and experience to support teachers and work with children. Scientists and engineers in disciplines other than the physical sciences (e.g., in the life sciences, earth sciences, and astronomy) also use the TOPS model for involving qualified retirees in science education partnerships. Most of those who have been involved in the program value their experience as among the most meaningful in their lives.

TOPS of SCV was formed in 2012 as a not-for-profit, joint-venture program of Retirees Enhancing Science Education through Experiments and Demonstrations (RE-SEED) Silicon Valley, TOPS of San Joaquin County, and the IEEE SCV Section’s STEM and Education Committee. RE-SEED is a program of Northeastern University’s Center for STEM Education.

TOPS of SCV works closely with the Santa Clara County Office of Education. It now has active ongoing partnerships in Palo Alto, Almaden, and Santa Clara and new partnerships in Los Altos and Mountain View. It is initiating new partnerships in Los Gatos and in the Morgan Hill Unified School District.

The coordinator of TOPS of SCV is IEEE Life Member Stephen Mori. He can be contacted at s.t.mori@ieee.org.

tales from the vault

The P-Picker

In January 1960, Philco Corporate Research Labs received funding from Philco’s Computer Division to develop an optical character reader (OCR). They wanted a machine that could read data into the computer that had been output on their high-speed printer.

The proof-of-concept-model OCR we implemented could be programmed to recognize any one alphabet character. It used a flying spot scanner imaged onto a flat surface where a document could be placed and an array of photo sensors to detect the light reflected from the document. The flying spot rapidly scanned from the top to the bottom

of a line of print, and it slowly scanned along the line of print.

The resulting video was quantized to two levels—black and white—and sampled at 24 pixels per vertical scan. That binary stream was fed into a shift register. In effect, the image captured in the shift register slowly scanned across the line of print. An electrical output from each element of the shift register was wired to a rectangular patch panel. We had a large number of resistors molded in plastic and fastened to plugs so that we could insert them into the patch panel to create a weighted template to recognize a character. The currents flowing through the resistors were

summed. If the total current exceeded a threshold, then the character was recognized. This was simple implementation of *template matching*.

Our first resistor template was for the letter “P,” as in Philco. The OCR immediately became known as the P-Picker.

The binary stream from the shift register was displayed on an oscilloscope, creating a representation of the line of print. The output of the recognition logic highlighted any character in the line that was recognized.

Not long after we completed the “P” design, and before we had a chance to design templates for any other characters, representatives from

the Post Office Department in Washington, D.C., were brought in for a demonstration. After we demonstrated the ability to pick out the “P” in a line containing the complete alphabet, I was asked if I could make it recognize the letter “R”. I asked for some time to put the logic together, and they went off to meetings and said they would be back in an hour. When they returned, I successfully demonstrated the ability to detect the “R” without falsely detecting the “P” in the same line of printed characters. Not long after, Philco was awarded a sole-source Post Office Department contract to develop an OCR to read addresses on envelopes.



Philco developed and delivered 30 Postal OCRs, like the one pictured above, which were installed in post offices around the country.

On that contract, Philco developed and delivered 30 Postal OCRs (like the one in the image to the left), which were installed and put into operation in major post offices around the country. These machines were capable of reading the city and state address on machine-printed envelopes and sending the envelopes along with the destination information to a large mail-sorting machine. One year, they were credited with sorting over 4 billion pieces of mail with better accuracy than achieved by human operators who entered envelope-destination information via keyboard.

—Thomas J. Harley, Jr., LM
Palo Alto, CA

Varistor-Transistor Hybrid Devices

Solid-state transistors, specifically the bipolar junction transistor (BJT), was invented in Bell Telephone Laboratories in 1947 by William B. Shockley, John A. Bardeen, and Walter H. Brittain. The inventors received the Noble Prize in Physics in 1956 for this landmark discovery. Transistors are so ubiquitous now that no one bothers to learn about their origin. The very word *transistor* is the contraction of the phrase, “transconductor plus varistor,” which clearly points to the perceived association of a transistor and a varistor. How sad that today very few people even know what a varistor is.

I am glad to share the story of how we stumbled into discovering the coupled relationship between a varistor and a transistor. In 2007, I retired after 30 years of a productive academic career at Texas A&M University (1977–1997) and the University of Alabama (1997–2007). My wife and I moved back to Texas and settled down in

Austin to spend our golden years looking forward to being part of the intellectual and cultural environments. But my retirement days ended within months, and I began working part-time at Texas State University, helping to build a new electrical engineering undergraduate program (EEUG).

Once we had succeeded in that mission, I began to teach an elective course on electroceramics (with an emphasis on microelectronics) and got students involved in experimental research. There was neither a lab nor an infrastructure to do any sort of research. Fortunately, with the help of internal resources and grants from the National Science Foundation and the Air Force Office of Scientific Research, I was able to put together a humble laboratory for electroceramics research. I hired four hardworking and dedicated EEUG students to work with me and learn about performing research. Our research consisted of processing ceramic substrates and

using them to build and characterize varistor diodes. During the course of five years, we invented a new class of device called *varistor-transistor hybrid devices* and thus established, for the first time, the coupled relationship between a varistor and a transistor.

When the current-voltage characteristic of a varistor is tuned using an external agent the varistor itself becomes a signal amplifier and assumes the property of “transconductance,” which is the signature of a transistor. The embedded transistors have all the attributes of a conventional transistor. They are suitable for general-purpose applications but are particularly suited for high-temperature operations for space electronics and possibly for bioelectronics. We have now published seven journal papers and included our undergraduate researchers as coauthors.

—R.K. Pandey, LSM
San Marcos, TX

Errata

We received a message from a member who pointed out that his member grade was incorrectly listed in the Honor Roll of Donors in the June 2015 issue of the *IEEE Life Members Newsletter*. Misao Kobayashi should have been listed as an IEEE Life Fellow. We apologize for the error.

IEEE Life Members—A 130-Year History of Philanthropy

Ever wonder about the history of the Life Member grade and the origins of the IEEE Life Members Committee (LMC)? To answer these and other questions, the LMC partnered with the IEEE History Center to amass our 130-year history. We are pleased to share it with you and hope that you enjoy reading about the significant role LMs have played in shaping the history and impact of IEEE and its predecessor societies the American Institute of Electrical Engineers (AIEE) and the Institute of Radio Engineers (IRE).

The LMC wishes to extend special thanks to our donors whose support of the IEEE Life Members Fund of the IEEE Foundation made the project possible and acknowledge the following individuals who tirelessly worked to bring the project to reality: Andrew J. Butrica, Karen Galuchie, Glenys Gotthardt, Michael Geselowitz, Sheldon Hochbeiser, V Prasad Kodali, Stacey Waters, and Ralph W. Wyndrum, Jr.

***Part 1** summarizes the years 1884–2010. The complete history, prepared by Andrew J. Butrica under the guidance of the IEEE History Center, is available at http://ethw.org/IEEE_Life_Members_Committee_History.*

***Part 2** summarizes the years 2011–2015 and was prepared by V Prasad Kodali with input from Stacey Waters and Karen Galuchie.*

PART 1 1884–2010 HISTORY

How did the grade of LM begin?

The AIEE, from its beginning in 1884, allowed any member to become an LM and be exempt from paying annual dues by making a one-time payment. The payment amount rose over the years and, in 1925, was based on the member's age. That same year, the AIEE also established the membership category of "Members for Life," which bestowed dues exemption on those who had paid dues for 35 years. The IRE also had LMs but only since 1947, when the Institute voted to waive the dues of every member who had reached the age of 65 and had paid dues for 35 years.

When the two organizations merged in 1963, the status of LM was conferred on all IRE LMs and AIEE Members for Life. IEEE Life Membership required that one be age 65 and have been a Member of the IEEE—or one of its two predecessor societies—for at least 35 years or be age 70 and have been a member for 30 years.

The IEEE had 3,772 LMs at the beginning of 1964. IEEE Bylaw 102.2, which defines the requirement for Life Membership, was last amended in 1971. Members age 65 and over whose age plus years of membership equal 100 are now eligible for Life Membership.

How did LMs become a committee and start on the path of philanthropy?

In 1925, with establishment of Members for Life in AIEE, many Members for Life continued to pay dues voluntarily. In 1943, after several false starts, the AIEE set up the Members-for-Life Fund and named the Life Member Fund Committee (LMFC) to determine the uses for the fund.

After the merger of AIEE and IRE, the Members-for-Life Fund became the IEEE Life Member Fund (LMF), managed by the Life Member Fund Committee (LMFC).

The first action of the LMFC was to promote and support activities for students. By 1948, the committee was providing travel expenses for the five student winners of the District Branch paper prize contests to the annual technical meeting to present their papers as part of the meeting's regular technical program. The award included a cash prize, which the LMFC increased in 1968.

In 1955, the LMFC established its own medal to emphasize the field of education. The Medal in Electrical Engineering Education was the first new medal administered by the AIEE since 1928. The LMF continued to support the education medal into the 1990s. After more than a decade, the LMF again sponsored the medal, known since 1999 as the IEEE James H. Mulligan Education Medal, along with several cosponsors.

Initially, the LMFC was an eight-member standing committee of the IEEE and reported directly to the Board of Directors, which named committee members and maintained the LMF among its accounts. Starting in 1975, the LMFC also was a committee of the IEEE Foundation, which named one of its members. Coming under the direction of the Foundation had a profound impact on the committee's history in later years.

The major thrust of LMFC activity during the 1960s, measured in terms of duration and the amount of funds budgeted, was the support of travel to international standards meetings. That support remained the largest undertaking by the LMFC for many years to come. The self-evident importance of standards was reflected in the long-standing standards committees of IEEE and its predecessor societies, AIEE and IRE. International standards meetings were important not only to the IEEE but also to electrical industries and the government. The committee terminated its support in 1971.

The LMFC began its long relationship with the IEEE History Committee and the Smithsonian Institution in 1967. Both the AIEE and the IRE had supported history projects before the merger, but only the IRE had a History Committee. After the merger, the IRE History Committee became the IEEE History Committee. By 1973, the LMFC was funding a number of historical activities in cooperation with the History Committee and the Smithsonian Institution, including inventories of electrical collections, slideshows on the history of electrical engineering, and oral histories. In 1977, the LMFC approved a proposal from the History Committee to establish the IEEE Life Members Graduate Study Fellowship in Electrical Engineering. The LMF has supported the fellowship annually up to the present day.

In addition to history, education, and international standards, the LMFC focused on sociability. Initiatives were directed toward enhancing the social experiences of LMs by creating social infrastructures (conference activities, a member directory, and a newsletter). These activities concurrently

facilitated social interactions among LMs and promoted interest in Life Membership in the anticipation that more LMs would be encouraged to contribute to the LMF.

The scale of the history activities underwritten by the LMF mushroomed following the establishment in 1980 of the IEEE History Center. The commemoration of IEEE's centennial in 1984 provided a further boost to the increasing number of activities supported by the LMF. The LMFC continued to work with the History Committee, and the committee added a new history prize to its growing program of supported activities—the IEEE Life Members Prize in Electrical History—which brought the LMFC closer to the historians of the Society for the History of Technology, which administered the prize. On top of its program of regular ongoing activities, the LMFC began reviewing a significant number of “special projects,” that is, proposals for activities of finite duration.

During the 1980s, the LMFC reached out to civic groups and high school students, as the committee encouraged new ways to promote the engineering profession. One example was the distribution to middle and high schools of videocassette recordings of the movie *The Miracle Force*. Narrated by Orson Welles and commissioned by the IEEE Centennial Task Force, this 28-min movie consisted of a series of interviews with engineers who spoke about their work in the fields of power, communications, astronautics, computers, and biomedical sciences. Underwritten by the IEEE Centennial Task Force, the movie attempted to answer the question, “What is an engineer?”

As early as 1969, the committee successfully advocated for the creation of a new reduced-dues category of retiree membership. In 1970, the committee expanded its charter to include older IEEE Members, not just LMs, to provide “greater stimulus and impetus, within the Institute, for older members.” This commitment remains in the committee's charter today. In 1971, the LMFC succeeded in changing the requirement for Life Membership. Members age 65 and older whose age plus years of membership equaled 100 were now eligible. The LMFC also started to extend its social infrastructure (conference activities, member directory, and a newsletter) beyond just LMs to all IEEE Members age 65 and older.

During the 1980s, the committee concerned itself with the large amount of LMF income versus the amount spent on projects. By 1992, however, when the committee's name changed to the “Life Members Committee,” it was approving disbursements of more money than the LMF was earning. The result was a draconian cut in both ongoing programs and special projects. The financial difficulties of the LMC were twofold: controlling spending and boosting contributions. The ebbing of LM contributions came to a head in 1999.

Starting in 1984, the LMFC promoted the idea that older member activities and programs should be the responsibility of the Regional Activities Board. The focus within the committee and within the IEEE was shifting toward Section meetings and Section-level activities and programs. As the Regional Activities Board took up older member activities, the LMFC considered promoting older

member activities by becoming involved with the Sections Congress, starting with the 1990 Sections Congress held in Toronto. This was a first step toward organizing LM activities and groups within IEEE Sections, which in 2005 became Life Member Affinity Groups (LMAGs).

In 1991, the Task Force on Life Member Services, formed by the Regional Activities Board and the Membership Development Committee, reviewed Life Membership questions because of the rising cost of providing services to the mounting number of LMs. One result was that LMs' conference registration fees would be no more than Student Member fees. A change in Life Membership eligibility eventually was reversed. One solution was to require LMs to return their annual renewal invoice to remain “active.”

The LMC also was becoming a more international organization during the 1990s, sponsoring workshops, awarding grants to student groups, championing older members in Regions outside North America, and, in particular, financially aiding the Beijing Section to establish an LM Chapter. The LMC continued to support history throughout the 1990s. Oral history was a key activity and included a project that encouraged LMs to write about their own experiences as electrical engineers, which appeared as the book *Legacies*. The largest history project funded—known initially as Power and Control—was the History Center's largest undertaking at the time, and the largest history project supported by the LMF in terms of duration. It resulted in the publication of several books on the history of electrical engineering. Starting in 1998, the committee funded the History Center through a quasi-endowment similar to the one that the IEEE Foundation awarded to the History Center. The LMC also provided support for the IEEE Virtual Museum and, since 2008, the IEEE Global History Network.

As the LMC entered the 21st century, the committee no longer reported directly to the Board of Directors, as a result of an IEEE reorganization that took place in 2001. The new structure assigned the LMC to the Regional Activities Board. Subsequently, in 2010, the Board of Directors made the LMC a standing committee of the Member and Geographic Activities Board. The LMC, still a committee of the IEEE Foundation, adopted a number of Foundation practices and consolidated its grant proposal submission process with that of the Foundation in 2008.

During this time, the LMF continued its long-established funding of the student paper contest, now in all ten Regions. It started to underwrite efforts to raise technological literacy through workshops and other efforts and continued to reach out to early-career engineers. The LMC provided long-term, sustained support for a key educational effort known as Retirees Enhancing Science Education through Experiments and Demonstrations (RE-SEED) aimed at secondary school students. As a result, the RE-SEED program spread outward from New England across the United States.

The LMC continued to take on a transnational character with members (and chairs) from outside the United States and meetings held outside Regions 1–6. The LMC remained an advocate of elder IEEE Members and helped to elevate LMs to higher grades. Social infrastructures (newsletter, website, conference activities) concurrently promoted social

interactions among LMs and encouraged more of them to contribute to the LMF. The contributions to the LMF provided the revenue stream from which the LMC drew. The LMC considered ways to increase donations and implemented a premium program that rewarded larger contributions with pins and coasters based on IEEE History Milestones. The Life Member Travel Program also provided IEEE Members with technology-themed learning tours and sociability.

Over the past half century, the LMC has evolved from a committee tied solely to the Board of Directors to one linked closely to the IEEE Foundation. At the outset, the committee focused on engineering education followed by a brief foray into international standards. Starting in the 1970s, the committee undertook initiatives directed toward enhancing the social experiences of LMs by creating social infrastructures (conference activities, member directory, and a newsletter) that concurrently promoted social interactions among LMs and encouraged more of them to contribute to LMF. The committee broadened its charter to make it a voice for older IEEE members, not just the half who were LMs, and opened its newsletter and member directory to them. By the end of the 1980s, the committee was turning its attention to LMs in IEEE Sections and eventually had a regular presence at every IEEE Sections Congress to promote the formation of LM Chapters and activities within the Sections. The LM Chapters evolved in 2005 to what we know today as IEEE LMAGs. The committee also reached out to civic groups and high school students through a variety of media and projects aimed at promoting the engineering profession and technological literacy (also known as STEM).

The evolution of the LMC tracked closely with that of the IEEE History Committee and the History Center. The scale and scope of history projects supported by the LMF swelled with the establishment of the IEEE History Center. A new wave of historical activity accompanied the 1984 commemoration of the IEEE centennial in 1984. The LMC also added two history initiatives, the Life Member Fellowship in Electrical History and the Life Member Prize in Electrical History (now the Bernard S. Finn IEEE History Prize), the latter of which brought the committee into a lasting collaboration with the Society for the History of Technology.

PART 2 2011–2015 HISTORY AND ACTIVITIES

At the end of 2014, the total number of IEEE LMs grew to 30,633, and there were 88 LMAGs and counting throughout the world. Worldwide local activities for LMs continue to expand, with over 250 events held in 2014 that included over 13,000 participants.

In August 2014, the LMC reviewed the qualifications for LM grade and unanimously voted to preserve the existing requirements expressed in Bylaw 102.2. Following its earlier practice, the LMC continued to partner with the IEEE Foundation to approve grants for projects that enhance STEM education, preserve the history of technology, and apply technology for humanitarian causes. From 2011 to 2014, more than US\$787,000 was awarded to 53 projects.

In 2014, the LMC endorsed the IEEE Foundation strategy for the future, including its new vision and mission, structure of philanthropy, and changes to the IEEE

Foundation/IEEE LMC Grants Program. The number of grant cycles was reduced to one per year with all grants being exclusively awarded to IEEE Organizational Units.

The LMC also continued its tradition of providing support to other key IEEE projects such as the IEEE Donald G. Fink Prize Paper Award, the Bernard S. Finn Prize in Electrical History, the Washington Internship for Students of Engineering, and the IEEE James H. Mulligan, Jr. Education Medal. The LMC voted to stop funding the Student Paper Contest Program beginning in 2015 due to declining participation in the current program and is working with the IEEE Student Activities Committee to explore impactful opportunities to support our students.

To fulfill its charge of promoting the interests and acting on behalf of the best interests of LMs and other older members, the LMC manages a number of highly valued outreach initiatives.

The IEEE Life Members Newsletter is published twice each year (June and December) and is distributed in print and electronically to all LMs, as well as to IEEE Members 65 years and older and retired IEEE Members ages 62–64. Adding an electronic-only issue between the June and December print issues is currently under consideration.

LM Technical Tours are technology-themed travel tours that visit IEEE Milestone sites. Past tours have visited the Panama Canal (2010), the United Kingdom (2011), Japan (2012), Canada (2013), and France/ Switzerland/ Germany (2015).

LMAGs are a forum to bring together LMs in a Section. Outstanding LMAGs have been recognized each year based on the number of LM events, attendance, and contributors to the IEEE LMF. A new LMAG Achievement Award was approved in 2014, which will begin annually recognizing one LMAG for substantive projects or achievements that have left an undeniable imprint on the fabric of IEEE LM operations or the LMF.

Sections Congress—IEEE's triennial gathering of IEEE grassroots leaders—has been actively attended by the LMC in 2011 and 2014 with an exhibit table and breakout sessions.

Engagement of LMs has been a main focus. In 2012, the LMC started holding discussions on how best to engage LMs and get them involved in local activities. Several possibilities have been identified and are being considered for implementation. Connecting and engaging with all LMs continues to be a high priority for the LMC through promoting local activities and providing programs for life members.

As the LMC continues to evolve, our core commitment continues to be acting on behalf of all LMs and promoting their interests. Through our philanthropic arm—the IEEE LMF of the IEEE Foundation—we are committed to supporting IEEE activities that are of interest to our LMs, potential engineers, and engineering students. Investment in the LMF enables initiatives, such as exciting students about STEM, empowering young minds to pursue careers in IEEE's fields of interest, and preserving the legacy that IEEE members help create, as well as acknowledging our peers for their accomplishments. With the continued support and generous donations from our LMs, the LMC will build and expand upon this legacy.

IEEE

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Our Mailing List

The *IEEE Life Members Newsletter* is distributed to Life Members and those who are not Life Members but are 1) IEEE Members 65 years and older, 2) retired IEEE members aged 62–64, and 3) members of special boards and committees.

Submitting Articles

We welcome articles for this newsletter. In particular, we seek articles about projects that are initiated at the Section and Region level by Life Members as well as “Tales from the Vault,” which should focus on novel or interesting technical issues. The suggested length for “Tales from the Vault” submissions is 500 words.

Acronyms should be completely identified once. Reference dates (years) also should be included. Editing, including for length, may occur. If you wish to discuss a story idea before hand, you may contact Craig Causer, managing editor, by e-mail at lm-newsletter@ieee.org. The deadline to submit an article for possible inclusion in the next issue is 1 April 2016. Please include your Life grade, town, state, country, phone number, member number, and/or an e-mail address with your piece.

Stopping IEEE Services

Life Members who no longer wish to receive mailings or publications should contact the IEEE Contact Center. If you are doing so on behalf of another Life Member, please submit the member’s name, number, grade, address, change date, and your connection (e.g., Section chair) to the Contact Center.

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Qualifying for Life Member Status

To qualify as a Life Member, an IEEE Member must be at least 65 years old, and the sum of the member’s age and the number of years of paid membership effective the following January must equal or exceed 100 years.

Have Questions, Ideas, or Concerns?

Have questions regarding your Life Member status? Reach out to the IEEE Contact Center for assistance. Have something else you need to ask or discuss? E-mail the Life Members Committee or its staff at life-members@ieee.org, call +1 732 562 5501, or fax +1 732 463 3657.

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