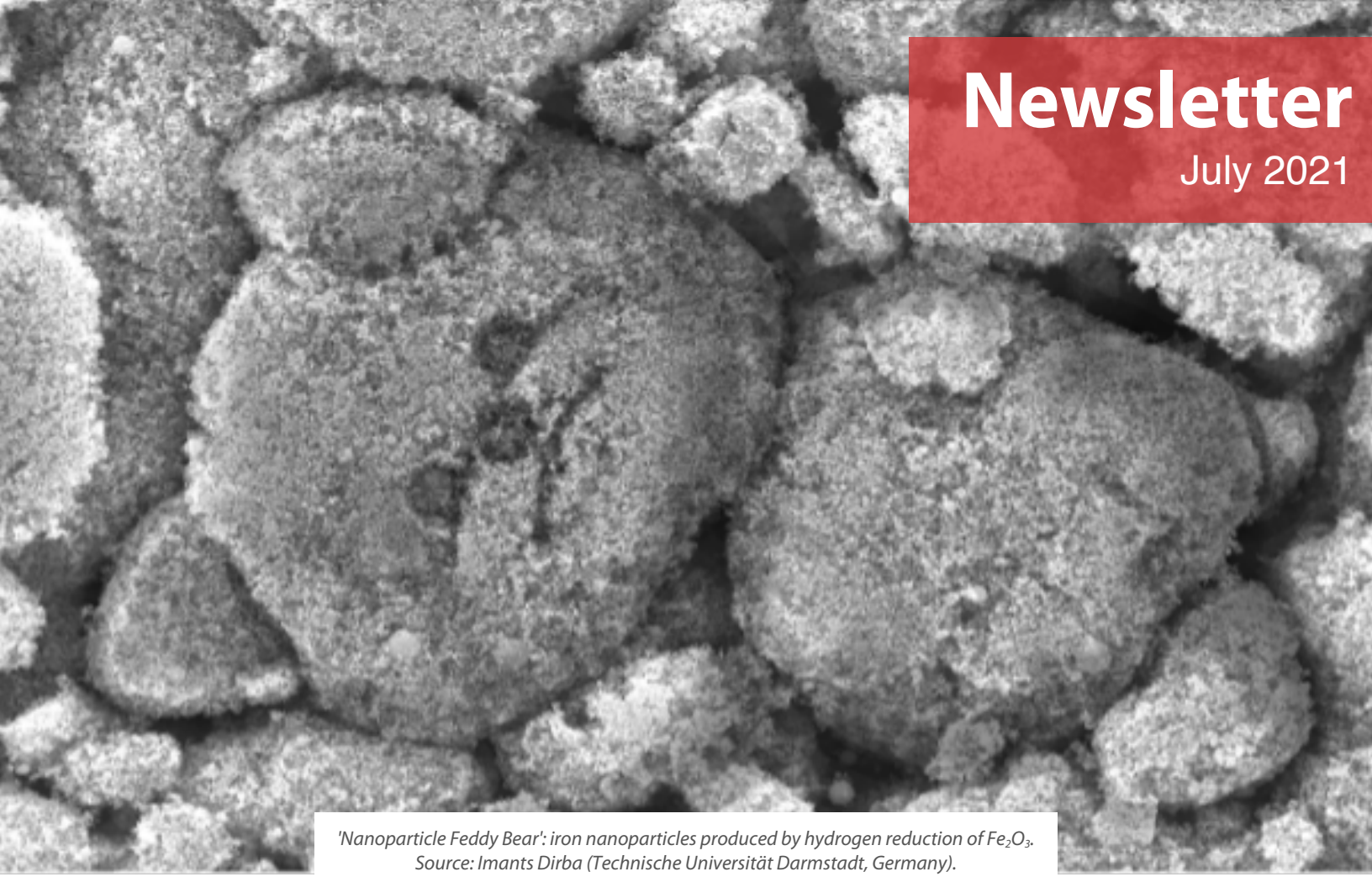


Newsletter
July 2021

'Nanoparticle Feddy Bear': iron nanoparticles produced by hydrogen reduction of Fe_2O_3. Source: Imants Dirba (Technische Universität Darmstadt, Germany).

Newsletter of the IEEE Magnetics Society

Volume 61 | Issue 3 | July 2021

Editor: Gareth Hatch

In this Issue:

From the President

*By **Masahiro Yamaguchi**, President of the IEEE Magnetics Society*

Let me begin with the same message as in the previous edition of the Newsletter – that I hope you and your families are staying safe and healthy. The impact of COVID-19 continues, and it shows different aspects in terms of the rapid spread of the Delta variant and the gradual effectiveness of vaccination. It is a difficult decision for everyone in balancing these two factors against each other. It was notable news during the June IEEE meeting series that a major IEEE conference held in the USA received more than 1,400 participants in person in early June 2021. I think the chance to meet in-person is slowly increasing compared with last year. The Society will make difficult but necessary decisions to support its members and to continue to push the frontiers of magnetism. So I would like to encourage travel for those willing and able to attend events. Needless to say, not everyone will be able to travel to every meeting, depending on the pandemic, academic schedules, other commitments and so on.

I extend my condolences, from the bottom of my heart, on the passing recently of Boris Kalinikos, Professor Emeritus at St. Petersburg Electrotechnical University, Russia, and Robert Alan Buhrman, Professor Emeritus at Cornell University, USA. We remembered Boris and Bob at the plenary session of INTERMAG 2021 conference.

I am happy to report that the IEEE Magnetics Society has recently joined the IEEE Task Force on Rebooting Computing (TFRC), and Pedram Khalili was appointed as the Society's representative on the TFRC Executive Committee. Please refer to the TFRC article in this edition of the Newsletter.

We are in a special situation financially, as I reported in the last edition. A key issue is to launch initiative activities quickly. As approved by the Society's Administrative Committee (AdCom) in May 2021, standing committees and corresponding individuals are working hard to implement the Hybrid Conference Initiative, the Educational Seed Funding Initiative, development of magnetism demos, the Society's Outreach Video Initiative, the Periodicals Promotion Initiative, the Oral History Pilot Project, the Distinguished Lecturers Video Initiative, as well as support for the 13th MRAM Global Innovation Forum 2021, and the Student, Diversity and Equity Initiatives.

All activities and operations of the Magnetics Society are defined in the Constitution and Bylaws of the IEEE Magnetics Society. Atsufumi Hirohata and the Planning Committee members continue to work hard to revise the Society's Constitution and Bylaws. The revisions were firstly approved by the Society's AdCom in November 2020. Then the IEEE Technical Activities Board (TAB) recommended minor revisions and a separation of the Bylaws details into an Operations Manual. At this time, the drafting is close to completion. Once approved by the TAB, the Bylaws will become effective immediately. The Constitution will be subject to the Society's membership review for 30 days, which I believe will commence very soon.

Motors and electric machines are key items in the approach to smart communities and a sustainable future. The interest in this area has been seen at recent Society conferences, and is increasing being reflected in publications. I had a virtual meeting with four experts in this area to improve visibility, and to represent motors properly in the Society's activities. Starting with the Joint MMM-INTERMAG 2022 conference, we will invite more experts on motors to be Program Committee members, as well as Program Co-chairs, to improve the quality and speed of digest and manuscript review, and to provide more chances to recommend motors for symposium, tutorial and associated events. We will support a meeting of motor experts at future INTERMAG conferences. We have paths to support conference sponsorship on any area of magnetics including motors. Experts in this area have joined the Technical Committee to enrich its activities. A quick outcome is that an expert on motors will deliver an invited talk at the upcoming 2021 Around-the-Clock Around-the-Globe (AtC-AtG) Magnetics Conference. I think it is a big challenge for the Society to more effectively manage 'practical' content within conference policies and strategies of the Society. Please note we can do similar initiatives in other interdisciplinary areas. Please suggest topics!

As always, please feel free to reach out to me by e-mail with feedback and suggestions for our Society.

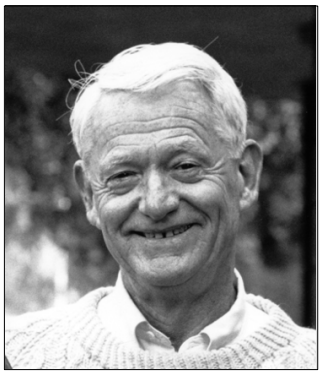
Masahiro Yamaguchi can be contacted via email:
***masahiro.yamaguchi@ieee.org**.*

In Memory of James Monson (1932-2021)

By Tom Coughlin and Roger Wood

James E. Monson, teacher, researcher, beloved colleague and loving parent, died on January 1, 2021 surrounded by his family.

Jim attended the New Mexico Military Institute, and then Stanford University where he majored in electrical engineering, receiving his MS degree in 1955. His first job was with Bell



Telephone Labs in Murray Hill, New Jersey. Deciding to get his PhD, he returned to Palo Alto, and was able to continue his studies and research while working part-time at Hewlett Packard.

In 1961, Jim decided to teach and began his academic career at Harvey Mudd College in Claremont in southern California. Because this small college of engineering and science had begun only a few years earlier, Jim and his few colleagues created an innovative curriculum in engineering, with components of the humanities. He remained at Harvey Mudd College for 35 years and loved it.

Early in his career at Harvey Mudd, Jim began working with colleagues in industry on the challenges of the evolving technology in magnetic recording. He solved problems and invented solutions, working with engineers from around the world at Siemens, Mitsubishi and other international corporations. Jim was a frequent participant in the IEEE International Magnetics (INTERMAG) Conference and various magnetic recording industry events.

Jim was known for his work on physical simulation of magnetic recording using large-scale models. His work and travels led to numerous connections and friendships, including in Eastern and Western Europe, and in Japan. He used his sabbaticals, every 7 years, to teach or do research in Dublin, Montenegro (twice), Japan (twice) and Paris, learning languages along the way.

Jim organized the annual Lake Arrowhead Interactive Workshop on Magnetic Recording hosted by Harvey Mudd. Many of us benefited tremendously from these meetings. They presented a delightful opportunity to exchange (and argue over) the latest ideas in a pleasant informal setting. The motto of the meeting (from the days of overhead projectors) was "Let no foil go unchallenged!".

Jim was a skilled magnetician and a willing collaborator. We had the pleasure of working with Jim in areas such as:

- the modelling of magnetic imaging and its impact on recording in multilayer magnetic media with soft magnetic layers;
- determining the effective permeability of soft magnetic layers adjacent to recorded media; and
- modelling the thermal decay of magnetic recording media that includes a soft magnetic layer.

Jim's other work included:

- a theory for Stockman's parametric motor;
- cancellation of unwanted spectral components in an FM multivibrator system;
- field analysis for magnetic heads with eddy currents or complex permeability;
- magnetization distribution in an isolated transition;
- measurements of side writing on a large-scale recording model;
- self-heating effects in thin-film heads;
- large-scale model studies of vertical recording;
- field analysis for nonlinear magnetic heads;
- stray losses in the step of a transformer yoke with a horizontal magnetic shunt;
- finite-difference equations at magnetic boundaries;
- fringing fields from step transitions of longitudinal and perpendicular magnetization on finite tracks;
- three-dimensional computation of the effect of the horizontal magnetic shunt on transformer leakage fields;
- augmenting the Williams-Comstock model to predict effects of varying write current;
- scale-modelling the read process for a film head; and
- calculating final transition widths using an augmented Williams-Comstock model.

After his retirement from Harvey Mudd College, Jim split his time between a retirement home in Point Reyes, California, and a desert hideaway in the Mojave Desert near Yucca Valley. Jim was an avid birder throughout his life and also served as a volunteer at West Marin Senior services and served on the Marin County's Commission on Aging. He also served as a tutor in math and physics at Tomales High School for ten years. He was always highly respected for his calm, clear thinking and his tolerance and thoughtful manner in handling complex issues.

Jim is survived by his wife, Julie, and his three children: John (married to Susie Helfrey), Jamie Monson and Jennifer Monson; and four grandchildren: James Monson, Elizabeth Monson and Eddie Monson, and Jenny Monson-Miller.

INTERMAG 2021 Conference Report

By Bernard Dieny, INTERMAG 2021 General Chair

Originally planned to be held in Lyon, France and finally held in virtual format

For the first time in the long history of INTERMAG, we had to organize the conference virtually, due to the COVID-19

pandemic. Of course, as General Chair, I would have greatly preferred welcoming you to Lyon, the third largest city in France. It is known as the French capital of gastronomy with numerous restaurants called *"Les Bouchons Lyonnais"*. It is a very nice and lively city with an impressive cultural heritage. Considering the evolution of the pandemic, the Conference Steering Committee with the approval of the Conference Executive Committee, decided in July 2020 to change the format of the conference from face-to-face to virtual. This was a very difficult decision to take but certainly a wise one, considering the pandemic situation in France at the time of the conference. On the positive side, by switching to a virtual format, we greatly contributed to reducing the "carbon footprint" of our conference.

The conference went very well. It gathered 1526 attendees from more than 40 countries, which is more than in traditional face-to-face conferences, thanks to reduced registration fees and the absence of visa requirements. The program of the conference included 1166 presentations with strong participation from Asia and Europe. I am particularly grateful to the Program Committee Co-Chairs Tom Thomson, Sara Majetich and Kyung-Jin Lee who coordinated the organization of the conference program. I am also very thankful to Molly Bartkowski, Regina Mohr, Jennifer Fiske, Shelbie Jenkins, and Ashley Cesare from Simply Vintage Event Management for their very professional help with various aspects of the conference management.

Besides the awards ceremony and plenary session (with Professor Ivan Schuller and Professor Roland Wiesendanger as plenary speakers), several special events were organized during this conference:

- The 12th MRAM Global Innovation Forum is part of the series, Forum on MRAM Physics and Technology, initiated by Samsung several years ago. Usually, these fora are organized annually in December, adjacent to IEDM which is the main annual conference of the IEEE Electron Devices Society. This year, we decided to embed the Forum within INTERMAG to invite researchers and engineers with microelectronic background to attend our magnetics conference.
- A special session on Entrepreneurship: Launching a Start-Up Company, with speakers from Europe, USA and Asia. They shared their experience as start-up entrepreneurs.
- Two focused sessions: The purpose of this new type of session is to draw attention to topics which are not presently mainstream in our community but, we believe, deserve more attention. One was related to magnetic biotechnology, the other to magnetorheological composite materials and applications.
- A tutorial session on Magnetism and the Environment with live Q&A.
- Three virtual bierstubes at different times to alternately favor the different time zones.

New Senior Members

The following members of the IEEE Magnetics Society were recently elevated to the grade of Senior Member:

June 2021: Arno Ehresmann, Jens Kirchner, Shehrin Sayed and Hernan Tacca.

For more information on elevation to Senior Member, visit the IEEE Senior Member Grade Web page.

INTERMAG 2021 Plenary Session

Submitted by Jürgen Fassbender, Honors & Awards Committee Chair

After the cancellation of the 2020 INTERMAG conference, this year the INTERMAG conference and hence also the plenary session was held online. The session was opened by **Bernard Dieny** (SPINTEC, France), as the General Chair of the conference. After welcoming the audience he thanked the members of the management committee and in particular his General Co-Chair **Vincent Baltz**, as well as Program Committee Co-Chairs **Tom Thomson** (University of Manchester, UK), **Sara Majetich** (Carnegie Mellon University, USA) and **Kyung-Jin Lee** (KAIST, South Korea); Publication Committee Co-Chairs **Petru Andrei** (Florida State University, USA), **S. N. 'Prem' Piramanayagam** (Nanyang Technological University, Singapore) and **Min-Fu Hsieh** (National Cheng Kung University, Taiwan); Publicity Co-Chairs **Philip Pong** (University of Hong Kong) and **Diana Leitao** (INESC-MN, Portugal); **Stéphane Mangin** (University of Lorraine, France) for the organization of the special events; **Rudolf Schäfer** (IFW Dresden, Germany) as the IEEE Magnetics Society Representative, and the conference managers **Molly Bartkowski**, **Regina Mohr**, **Jennifer Fiske**, **Shelbie Jenkins** and **Ashley Cesare**. Afterwards, Bernard Dieny presented some statistics on the conference.

Next, the new President of the IEEE Magnetics Society **Masahiro Yamaguchi** (Tohoku University, Japan) was introduced who thanked **Pallavi Dhagat** (Oregon State University, USA) for her outstanding leadership of the IEEE Magnetics Society as his predecessor.

Before the award presentations began, two great contributors to the field of magnetism, who recently passed away, were remembered. **Boris Kalinikos** (1945 - 2020), Professor Emeritus at St. Petersburg Electrotechnical University, Russia, examined applied condensed-matter physics and engineering, in

particular, the linear and nonlinear properties of spin waves and their utilization for the realization of microwave devices occupied the central part of his very fruitful career. **Robert Alan Buhrman** (1945 - 2021), Professor Emeritus at Cornell University, USA, examined applied condensed-matter physics in nanoscale science and engineering. He pioneered ways to control magnetism in order to store digital information. His innovations enabled spin-transfer-torque magnetic random access memory.

The Honors and Awards Chair **Jürgen Fassbender** (Helmholtz-Zentrum Dresden-Rossendorf, Germany) oversaw the awards part of the session. Every year, awards and recognitions are given to deserving members who have excelled in their technical achievement. However, in 2020 the award winners were selected but could not be honored due to the cancellation of last year's INTERMAG Conference. Hence, in this plenary session, two Achievement Awards winners, two Early Career Awards winners and two Distinguished Service Award winners were honored. In addition, in 2021, a new IEEE Magnetics Society Award has been inaugurated, which is the Mid-Career Award. Hence, also the first winner of the Mid-Career Award was honored.

The IEEE Magnetics Society Achievement Award is awarded every year to a Society member who has made extraordinary contributions to the field of magnetism. This award is the highest honor bestowed by the Society. The 2020 recipient of the Achievement Award was **Chia-Ling Chien** (Johns Hopkins University, USA). The citation reads: "*For pioneering discoveries in magnetic materials, nanostructures, and spin phenomena; for training young researchers; and providing invaluable service to the community*."

The 2021 recipient of the Achievement Award was **Eric Fullerton** (UC San Diego, USA). The citation reads: "*For groundbreaking and sustained contributions to the invention and development of modern exchange-coupled magnetic recording media and devices*."

Next, the newly established Mid-Career Award was presented. The aim of this award is to recognize scientists and engineers at the mid-stages of their career for outstanding research and technological contributions in a field represented by the IEEE Magnetics Society. Eligible are members of the Society in the mid-stages of their career (between 10 to 20 years after completion of the PhD, except in the case of significant career interruptions due to family or military service). The Award consists of a certificate, a cash award of US$ 2000 plus up to US $ 500 for travel to the award ceremony, and life membership in the Magnetics Society. The first recipient of the Mid Career Award was **Geoffrey Beach** (MIT Boston, USA). The citation reads: "*For pioneering contributions to the understanding of chiral exchange interactions, spin-orbit torques, domain wall and skyrmion dynamics in magnetic films, heterostructures and nanostructures*."

In order to better support researchers in their early career period, the IEEE Magnetics Society has established the IEEE Magnetics Society Early Career Award. This award will be given to an individual, nominated not more than 5 years after completion of his or her PhD, and who has already shown outstanding scientific or technical achievements which has been significantly beyond the average performance of a person at that career level. The 2020 recipient of the Early Career Award was **Jean Anne Incorvia** (The University of Texas at Austin, USA). The citation reads: "*For contributions to implementation of von Neumann and neuromorphic magnetic computing prototypes using spins in two-dimensional systems*."

The 2021 recipient of the Early Career Award was **Kerem Camsari** (UC Santa Barbara, USA). The citation reads: "*For contributions to the theory and practice of using low barrier nanomagnets for probabilistic computing*."

Last but not least the Distinguished Service Award was presented. This award will be given for outstanding service to the Magnetics Society characterized by sustained voluntary service work, which has been significantly beyond the average performance of a person in that function. The 2020 recipient of the Distinguished Service Award was **Gareth Hatch** (Strategic Materials Advisors, UK). The citation reads: "*In recognition of a decade of outstanding service as Editor of the Magnetics Society Newsletter, and in particular for transforming it into a modern and engaging communications vehicle that is available through multiple channels*."

The 2021 recipient of the Distinguished Service Award was **Manuel Vazquez** (CISC Madrid, Spain). The citation reads: "*For tremendously strengthening IEEE Magnetics Society outreach worldwide and dedicated efforts to engage new people in service to the society*."

After the awards were presented, the Honors and Awards Chair recognized the new IEEE Fellows. In 2020 four members of the Magnetics Society have been elevated to the fellow grade. These are **Oliver Gutfleisch** (TU Darmstadt, Germany), **Chris Leighton** (University of Minnesota, USA), **Nian-Xiang Sun** (Northeastern University, USA) and **Bruce Terris** (Western Digital, USA). Also in 2021, four members were elevated. These are **Vitaly Lomakin** (UC Santa Barbara, USA), **Stéphane Mangin** (University of Lorraine, France), **Mi-Ching Tsai** (NCKU, Taiwan) and **Mingzhong Wu** (Colorado State University, USA).

The Society President Masahiro Yamaguchi then acknowledged last year's INTERMAG Conference Chair **Cindi L. Dennis** (NIST, USA) who had a tremendous work load although

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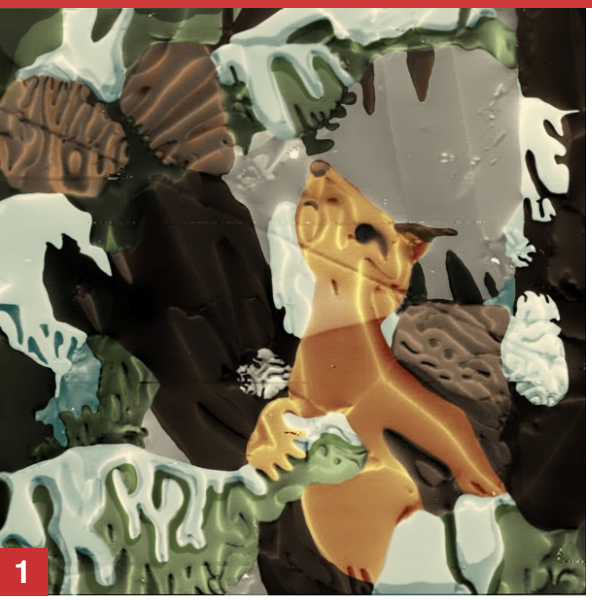

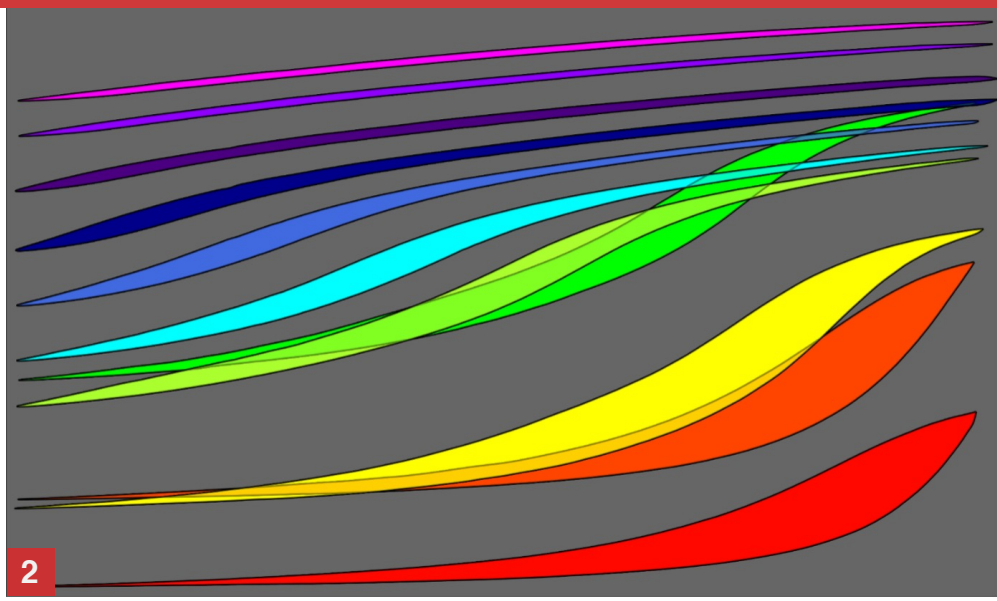

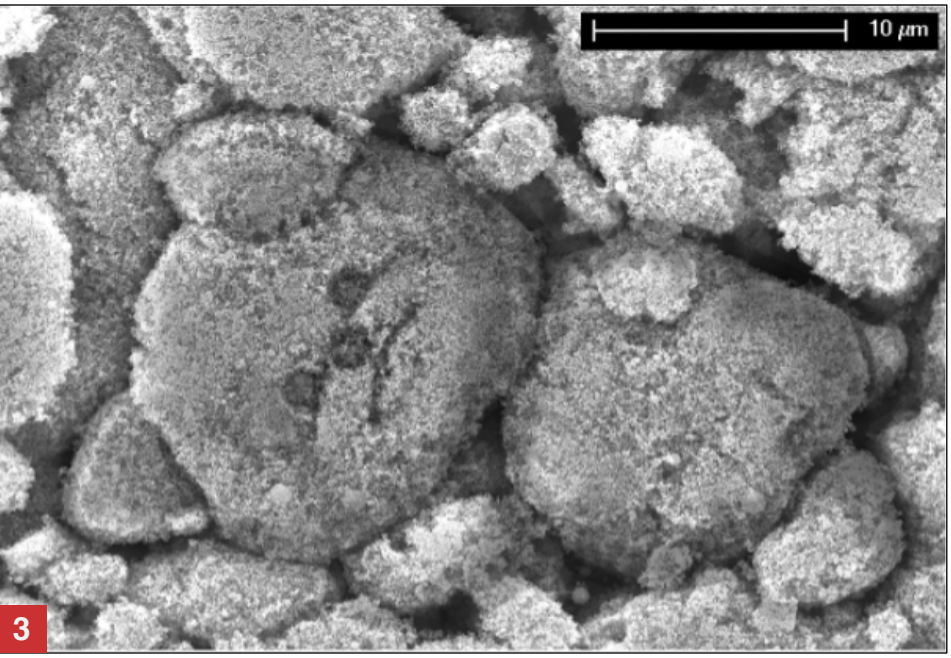

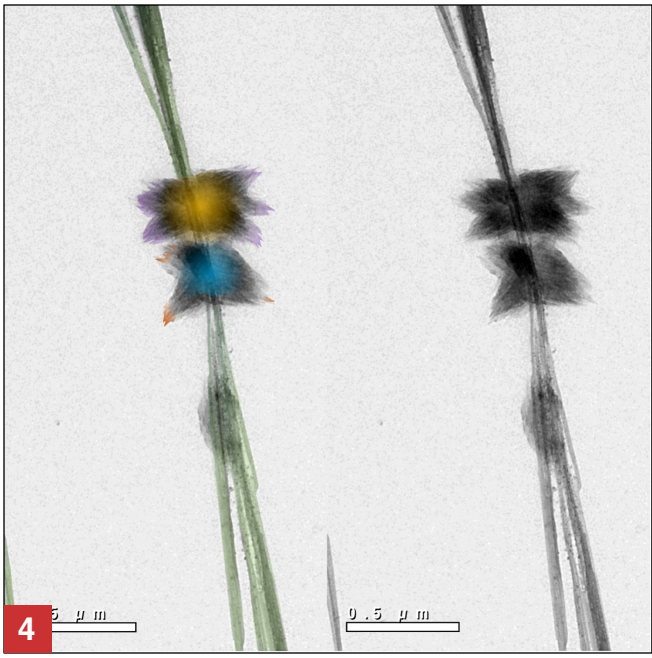

INTERMAG 2021: Magnetism as Art Showcase

Submitted by Bernard Dieny, INTERMAG 2021 General Chair

The INTERMAG 2021 Magnetism as Art Showcase, supported by Quantum Design Europe, highlights the beauty of magnetism and magnetic materials. Thank you to all who participated!

A total of 33 submissions were received and displayed as posters during the conference. Four finalists were then selected by a panel of judges chaired by Daniel Lacour from Institut Jean Lamour (Nancy, France), and the winner was selected by popular vote. Thank you to all who voted!

INTERMAG 2021 Magnetism as Art Showcase Winner:

1. *Squirrel in the Forest* : domain structure of sintered magnets (NdDy)(FeCo)B, submitted by **Oksana Koplak** (Russian Academy of Sciences, Moscow, Russia.)

Other Showcase Finalists:

2. *Magnetostrictive Banana Loops* : magnetic flux density variations under variable mechanical stresses for a Terfenol-D sample, a magnetostrictive material. Submitted by **Daniele Davino** (University of Studies of Sannio Benevento, Italy.)
3. *Nanoparticle Feddy Bear* : This naturally-formed teddy bear consists of iron nanoparticles obtained by hydrogen reduction of Fe_2O_3. The average particle size is about 50 nm and they form large micrometer-range clusters. The nanoparticles possess high saturation magnetization and a coercivity that exceeds the theoretical anisotropy field value. Submitted by **Imants Dirba** (Technische Universität Darmstadt, Germany.) Associated paper available **here**.
4. *Two Butterflies on the Reed* : high magnetic-moment iron-nitride nanoparticles that are assembled to microrod and butterfly shapes under transmission electron microscopy (TEM). Submitted by **Kai Wu** (University of Minnesota, USA.)

Continued from Page 4

the conference had to be cancelled finally.

The Administrative Committee manages the IEEE Magnetics Society and elects biennially the President-Elect and Secretary/Treasurer. After the two-year term, the President-Elect becomes the new President of the Society. The Administrative Committee consists of 24 elected members who serve for a period of three years. Each year, eight new members are elected while the knowledge transfer is guaranteed by the remaining 16. The President thanked the outgoing members of the Administrative Committee, who were in 2020: Dora Altbir, Yukiko Kubota, Chih-Huang Lai, Stéphane Mangin, Ruben Sommer and Jan Sykulski, and in 2021: Cindi Denis, Peter Fischer, Simon Greaves, June Lau, Teruo Ono and Tom Thomson. In addition, 11 chairs of the standing committees are appointed by the President for a two-year term. The outgoing committee chairs were acknowledged. These were: Manuel Vazquez for Nominations, Ron Goldfarb for Publications, Brian Kirby for Education, Hans Nembach for Membership and Oksana Chubykalo-Fesenko for Chapters.

In the remaining part of the plenary session, the best student presentation finalists were awarded by Sara Majetich as the chair of the Education Committee and the Magnetism as Art Showcase was presented by the General Chair Bernard Dieny (see separate report). In the end, two summary talks were given by the plenary speakers **Ivan Shuller** (UC San Diego, USA) and **Roland Wiesendanger** (University Hamburg, Germany) followed by Q&A sessions. Due to the virtual format, no reception could be organized. However, we hope to see you all face to face again at one of the upcoming conferences.

2021 Annual Meeting of the IEEE Magnetics Society

*By **Masahiro Yamaguchi**, President of the IEEE Magnetics Society*

The 2021 Annual Meeting of the IEEE Magnetics Society was held in virtual format immediately after the plenary session of INTERMAG 2021. It took place two years after the previous meeting in Washington, DC, held alongside the 2019 Joint MMM/INTERMAG Conference. The 2021 meeting outlined the Society, introduced how to become a member of the Society, and suggested volunteer opportunities with the Society, along with the introduction of the latest Society volunteers and conference schedule.

For those new to the IEEE Magnetics Society, we are a 56-year-old non-profit association that forms one of the 46 Societies/Councils of the Institute of Electrical and Electronic Engineers (IEEE). Our mission is to promote the advancement of science, technology, applications and training in magnetism. It fosters the presentation and exchange of information among its members and within the global technical community, including the education and training of young engineers and scientists. I am personally very happy and proud to be a member of the Society, and hope that you share my feelings on this!

For those familiar with the Society, COVID-19 has been impacting all the Society's activities including conferences, publications, Summer School, Distinguished Lecturer program, chapter events, and more. We are carefully watching the trends in infection and vaccination to find a better way to continue forward, while keeping your health and safety first and foremost in mind. In early 2020, there was no alternative but to cancel some conferences. Later we gradually came back to get together but in virtual format for small conferences. It has been the same for the Distinguished Lecturers' program and chapter events. Therefore, I would like to congratulate Bernard Dieny and the INTERMAG 2021 team for the great success of the virtual format of the INTERMAG conference, the first time in this format in the long history of the conference series. Everyone knows that countless difficulties were overcome.

The Society's organization is widely and deeply supported by excellent volunteers. You can find the list of contacts in the last two editions of the Society's newsletter, and on the Society's website at **www.ieeemagnetics.org**. Interested? Please join us. You can find a volunteer sign-up form at the Society's website as well.

I should add that financially our society has adequate funds to buffer any losses. I hope that we can meet in-person at the Joint MMM-INTERMAG 2022 conference, to be held in hybrid format in New Orleans, USA, during January 10-14, 2022.

Introducing the Task Force on Rebooting Computing (TFRC)

By Paolo Gargini, TFRC Chairman

Submitted by Pedram Khalili, TFRC Executive Committee Member

The International Technology Roadmap for Semiconductors (ITRS) was formed in 1998 as a joint effort representing Europe, Japan, Korea, Taiwan and U.S. semiconductor associations, to outline challenges and possible solutions with a 15-year outlook. This effort was absolutely necessary then, due to the soon approaching end of SiO_2 gate dielectric scaling (i.e., gate thickness vanishing to nothing by 2005). Multiple research programs were then initiated around the world, and by 2011, a new dielectric (HfO_x) had been successfully introduced into manufacturing, and also the transistor structure had changed from the original planar layout and had been vertically rotated by 90 degrees "up on one side" (i.e., FinFET). By 2004, microprocessor unit (MPU) power dissipation reached the limit of 130 W and performance had to be sacrificed going forward

(i.e., maximum frequency limited to less than 6 GHz).

In 2013, the IEEE launched the Rebooting Computing Initiative (RCI) to reinvigorate research promoting enhancements in computer performance. In 2014, RCI and ITRS initiated a very constructive dialogue in an attempt to optimize device and architecture symbiotic intermingling, to enhance computing performance back to historical rates. In 2016, the ITRS migrated into the IEEE with a broader outlook sponsored by RCI, under the new name of the International Roadmap for Devices and Systems (IRDS). Since then, many new devices and many new architectures have been demonstrated. In 2018, a new architecture implementing a super-parallel logic-circuit organization, powered by FinFET transistors, was introduced in manufacturing. This combination brought computing performance back to historical rates.

After a period of incubation, the RCI has now migrated into the IEEE Computer Society (CS) under the name of the Task Force on Rebooting Computing (TFRC). In addition to CS, multiple IEEE societies are part of this effort: these include the Magnetics Society, Electron Devices Society, Circuits and Systems Society, Council on Superconductivity, Signal Processing Society, Power Electronics Society, Council on Electronic Design Automation, and more additions are in progress.

Advances in magnetic and spintronics technologies play an important role in helping to realize the vision of rebooting computing. The TFRC therefore invites members of the magnetics community to get involved in its activities, including IRDS, related conferences, and other efforts. A conference on the IRDS and new device concepts is scheduled for September 23-24, 2021. In addition, the International Conference on Rebooting Computing (ICRC) is scheduled to be held virtually during November 30 - December 2, 2021. Please consider contributing your best results and ideas to these conferences!

To learn more about TFRC, please contact TFRC Chairman, Paolo Gargini (**paologargini1@gmail.com**), or the IEEE Magnetics Society representative on the TFRC Executive Committee, Pedram Khalili (**pedram@northwestern.edu**).

INTERMAG 2023 Logo Design Competition

By Simon Greaves, INTERMAG 2023 Logo Design Competition Chair

The 2023 INTERMAG Conference will be held in Sendai, Japan during May 15-19, 2023. A competition to design a logo for the conference, was held at the end of 2020.

The call for a logo design was distributed with the cooperation of Sendai Tourism, Convention and International Association, the Magnetic Society of Japan (our sister society), the IEEE Magnetics Society Sendai/Sapporo Joint Section Chapter, and the competition website. 156 entries were received, including 35 from students at local schools and several from overseas.

Three organising committee members carried out an initial review of the entries, after which 81 remained. Next, ten committee members took part in the second selection round, assigning 1-3 points to each of the entries.

The entry with the highest number of points (25 out of a maximum of 30) was selected as the winner. The winner was **Kaoru Sugano**. Runner-up prizes were awarded to **Xuhua Wang** and **Keiichi Hibari**. A student encouragement prize was awarded to **Waka Saito**.

The winning entry (shown above) depicts a silhouette of a horse-mounted Masamune Date, the founder of what is now Sendai city. The crescent-moon ornament on his helmet has been substituted with a compass needle. The image is coloured green to represent Sendai, whose motto is "the city of trees". A horseshoe magnet with the legend "INTERMAG 2023 Sendai" surrounds the image.

Search for the next Editor-in-Chief of *IEEE Transactions on Magnetics*

By Tom Thomson, Publications Committee Chair

As mentioned in the previous edition of the Newsletter, Pavel Kabos will retire as Editor-in-Chief of *IEEE Transactions on Magnetics* at the end of 2021, after 10 years of distinguished service since January 2012. We invite expressions of interest from members of the Society to be the next Editor-in-Chief.

IEEE Transactions on Magnetics is a peer-reviewed journal that covers science and technology related to the basic physics and engineering of magnetism, magnetic materials, applied magnetics, magnetic devices, and magnetic data storage. *IEEE Transactions on Magnetics* publishes scholarly articles of archival value as well as tutorial expositions and critical reviews of classical subjects and topics of current interest. It is a hybrid open-access/subscription journal.

The new Editor-in-Chief will start in January 2022 with an initial two-year appointment and two possible re-appointments. The qualified candidate is expected to have a doctorate in engineering, physics, materials sciences, or a related area; at least five years of editorial experience; broad interest across the full spectrum of magnetism and magnetic materials and devices; an established network in the magnetics community; and project-management skills.

The Editor-in-Chief manages the operations of the journal with the help of an editorial assistant, recruits associate editors and members of the editorial board, examines incoming manuscripts for originality and scope, assigns them to associate editors to manage the reviews, and shapes and leads the journal. It is an unpaid, volunteer position.

The new Editor-in-Chief will have the full support of the outgoing Editor-in-Chief and the Society's Publications Committee Chair and Associate Chairs.

To apply, please submit a brief resume and letter, outlining your qualifications and position statement to me via email at **thomas.thomson@manchester.ac.uk**. Pavel is available to answer questions at **pavel.kabos@nist.gov**. Applications will be considered until September 1, 2021. The appointment will be subject to approval by the Society's Administrative Committee.

JxCDC Special Issue on Cryogenic Computing

Submitted by Tom Thomson, Publications Committee Chair

One of the IEEE Magnetics Society's co-sponsored open-access journals, *IEEE Journal on Exploratory Solid-State Computational Devices and Circuits* (JxCDC), has announced a special issue on "Cryogenic Semiconductor Devices and Circuits for Computing." Papers are solicited on emerging cryogenic semiconductor devices and circuits for high-performance computation.

The submission deadline is **1 October 2021**. More information is available at **https://buff.ly/2UQOs8Y**.

Conference Calendar

*By **Gareth Hatch**, Newsletter Editor*

Please check the conference websites shown below for the latest information on COVID-19-related schedule or format changes.

The Magnetic Recording Conference (TMRC 2021)
16-19 August 2021 - online.

2021 Around-the-Clock Around-the-Globe Magnetics Conference (ATC-ATG 2021)
24-25 August 2021 - online.

IV International Baltic Conference on Magnetism 2021 (IBCM-2021)
29 August - 2 September 2021 - Svetlogorsk, Russia / online.

Trends in Magnetism 2021 (TMAG2021)
6-10 September 2021 - Cefalù, Italy / online.

European School on Magnetism 2021 (ESM 2021)
6-17 September 2021 - Cluj-Napoca, Romania / online.

IEEE International Conference on Rebooting Computing (ICRC 2021)
30 November - 2 December 2021 - online.

2022 Joint MMM-INTERMAG Conference
10-14 January 2022 - New Orleans, Louisiana, USA.

3rd European Conference on Molecular Spintronics (ECMolS 2022)
5-8 April 2022 - Dortmund, Germany.

To list your conference in the Newsletter Conference Calendar in a future edition, please contact the **Newsletter Editor**.

About the Newsletter

The purpose of the Newsletter of the IEEE Magnetics Society is to publicize activities, conferences, workshops and other information of interest to Society members and other people in the area of applied magnetics.

Contributions are solicited from Society members, Officers & other volunteers, conference organizers, local chapters, and other individuals with relevant material. The Newsletter is published quarterly on the Society webpage at: http://www.ieeemagnetics.org

Please send all contributions via email to the Newsletter Editor, Gareth Hatch, at: g.p.hatch@ieee.org