

On the Highlights of the Fifth International Conference on Superconductivity and Magnetism—ICSM 2016, Fethiye, Turkey

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Despite the political unrest and turmoil in the neighboring countries of the Middle East plus the many serious travel restrictions and warnings made prior to the conference, a little impact on participation is incurred and the conference still remained to be a well-attended one with nearing a thousand.

The fifth edition of the International Conference on Superconductivity and Magnetism-ICSM 2016 was held at Liberty Hotels Lykia and Sentido Lykia Resorts Spa in Fethiye, at the very heart of touristic and historical places between 24 April and 30 April 2016. The first edition of the ICSM was held in 2008 in an urban town called Side, about 70 km away in the southern part of the greater city, Antalya. The second ICSM was held at the city center of Antalya; Porto Bello Hotel was the venue in 2010. The third ICSM was held in Istanbul. The fourth one (previous), ICSM 2014 was held in Antalya.

ICSM has already become a prominent platform as being one of the large conferences with over a thousand contributions from internationally recognized reputable research institutions from over 60 countries, focused on superconductivity and magnetism with fundamental matters of interest in materials and applications together with the interplay of superconductivity and magnetism and the new addition of enabling technologies based on “cryogenics and engineering materials and applications.”

Over 1000 abstracts were submitted to the database of the conference; 900 of them were accepted for presentation at the conference and 850 were presented.

The excellent success of the conference relies on the major contributions both in the organization of fully focused sessions and in the scientific issues and debates. We, as all organizers, are therefore most grateful to the worldwide community of superconductivity and magnetism. The program committee consisted of all focused session chairs/moderators/organizers as similarly to the past conferences in the series, who participated actively for the selection of works presented at the conference. The program composed of 9 plenary and 8 half-plenary talks (given in Tables 1 and 2), 230 invited talks, 170 selected talks, and 450 poster presentations. As organizers, we really appreciate to the efforts of all delegates for their cutting-edge research works and to the session chairs for the selection of the high-level presentations within harmony of the sessions.

The conference started on Sunday, 24 April, with the official opening ceremony with the participation of Mayor of Fethiye, Mr. Behcet Saatci, who made a welcoming speech and expressed his wishes for the success of the conference. Then, Laura H. Greene from Florida State University and Sadamichi Maekawa from Japan Atomic Energy Agency delivered opening plenary talks.

Opening ceremony and plenary talks have been posted at Opening Ceremony: <https://vimeo.com/album/3150464> and Presentations: <https://vimeo.com/album/3921624> at a password-protected site. Please contact Dr. Mustafa Akdoğan at info@supermag.com.tr for a full view. We are grateful to Dr. Mustafa Akdoğan and Dr. Hakan Yetiş for their valuable cooperation.

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Table 1 Plenary talks presented at ICSM 2016

Presenter	Title
Laura H. Greene Florida State University, USA	High temperature superconductivity: taming serendipity
Sadamichi Maekawa Japan Atomic Energy Agency, Japan	Spin current, spin conversion and power spintronics
Ivan Bozovic Brookhaven National Laboratory, USA	The origin of high-Tc superconductivity in cuprates
Herman Ten Kate CERN, Switzerland	Superconducting detector magnets for the 100 TeV future circular collider
Hai-Hu Wen Nanjing University, China	Pairing mechanism revealed by STM/STS measurements on iron based superconductors with distinct Fermi surface topology
Hideo Hosono Tokyo Institute of Tech., Japan	10th Anniversary of iron-based superconductors: progress and current status
Bekir Aktas Gebze Technical University, Turkey	Spin dynamics in magnetic films characterized by spin wave resonance
Hideo Ohno Tohoku University, Japan	Spintronics nano-devices for VLSIs
Stuart Parkin Martin Luther University, Germany	Rise of racetrack memory! Domain wall spin-orbitronics

As a custom with all ICSM conferences, we have had a spring school and educational school program prior to the conference between 19 and 23 April 2016 at the same venue, and 30 selected international students and post-docs attended. We are grateful to Prof. Dr. Ibrahim Belenli for the very effective coordination of the lectures and the school program. It has been a good opportunity to exchange the advancements with their pioneers in their specialized fields for their careers.

Around 172 papers were submitted for the special issue of the proceedings and 105 were accepted after reviewing to be included in the special issue. These papers were roughly classified into fundamentals, materials, and applications for

both superconductivity, magnetism, and their interplay. We appreciate the active support from the publishing editors and the journal's staff. We are confident that the booming research and highlights of the conference have been included in the special issue as a good reflection. We express our special thanks to Prof. Vladimir Kresin and Prof. Stuart Wolf. We are also most grateful to the plenary and half-plenary speakers for their invaluable contributions; without their active involvement and support, this conference could not have been a real success.

The organizing committee and international advisory board members appreciate the efforts of all invited speakers, reviewers, and the authors with contributions. I would

Table 2 Half-plenary talks at ICSM 2016

Presenter	Title
Rene Flukiger University of Geneva, Switzerland	Artificial pinning in superconductors
Nihat Berker Sabanci University, Turkey	Controlled frustration and chaos, critical phases and lower-critical dimension in spin glasses
Jun-ichi Shimoyama Aoyama Gakuin University, Japan	Potentials of HTS superconducting materials for extensive applications
Javier Campo CSIC, Spain	Neutron scattering studies in molecule based magnets
Vitaly Kresin University Of Southern California, USA	Pairing at T 100 K in size-selected metal nanoclusters
Eugene Chudnovsky The City University of New York, USA	Spin mechanics with nanomagnets
Bartek Andrzej Glowacki University of Cambridge, UK	Integration of hydrogen cryomagnetic technology into decentralised energy management
Eugenio Coronado Miralles Universitat de Valencia, Spain	Current trends in molecular spintronics

like to extend my sincere thanks to Prof. Mehmet Ali Aksan and Dr. Ali Bozbey for the very hard work for both conference layout and the efforts in the review process. We also thank the financial committee for the successful budget management.

For the logistics of the conference, we are very happy to work with Prof. Ekrem Yanmaz, Prof. Bekir Ozcelik, Prof. Sükrü Celik, Dr. Ahmet Kılıç, Dr. Hakan Gungunes, Dr. Haluk Koralay, Dr. Serap Safran, Dr. Ozgur Ozturk, Dr. Gokhan Bakır, Dr. Sukru Cavdar, Dr. Hakan Yetis, Dr. Mustafa Akdogan, Mr. Barış Guner, Mr. Ercan Ertekin, Mr. Fırat Karaboga, Mr. Mustafa Eren Celik, Ms. Merve Tugce Incel, Mr. Ozkur Kuran, Mr. Salih Gencer, Mr. Yigitcan Uzun, Mr. Hamit Ozturk, Ms. Meryem Alp, Ms. Ozgul Karatas, Mrs. Zeliha Ertekin, Mr. Sasan Razmkhah, Mr. Altay Karamuftuoglu, Mr. Asaf Tolga Ülgen, Mr. Cagri Ocal Barış, Ms. Emine Demirturk, Mr. Eren Can Aydogan, Ms. Kubra Usenmez, Mr. Naki Kaya, Mr. Rasim Ozguzel, Ms. Seda Demirhan, Ms. Tugce Metin, and Mr. Serdar Oncul.

The immensely rich and diverse program composed of special and regular sessions. The special sessions are all focused on the specific subject with an organizer in charge, while regular sessions have a broader range of subjects.

- Ab initio magnetism—Matt Probert (University of York, UK)
- Advances in thin films, multi-layers and patterned nanostructures
- Broken time reversal symmetry in superconductors—Egor Babaev (KTH, Sweden)
- Bulk superconductors—Andres Sotelo (University of Zaragoza, Spain)
- Cryogenics materials, engineering and applications—Yasuharu Kamioka (ColdTech Associates, Japan)
- Dilute magnetic semiconductors—Tomasz Dietl (Polish Academy of Sciences, Poland)
- Ferrites and rare earth magnetic materials—Muhammad Anis-ur Rehman (COMSATS, Pakistan)
- Frustrated magnetism and spin systems—Reinhard Kremer (MIP, Germany)
- Functional oxide thin films—Chang Uk Jung (University of Foreign Studies, South Korea)
- Heavy fermion superconductivity—Siddharth S. Saxena (University of Cambridge, UK)
- HTS cuprates—Ivan Bozovic (Brookhaven National Laboratory, USA)
- HTS superconducting thin films, proximity effects, and interface superconductivity—Davor Pavuna (EPFL, Switzerland)
- HTS wires, tapes, and coated conductors—Wilfried Goldacker (KIT, Germany)
- Impurities and defects—their role in understanding unconventional superconductivity—Samuele Sanna (University of Pavia, Italy)
- Iron-based superconductors—current developments in the studies of fundamental properties—Ruslan Prozorov (Iowa State University, USA) and Peter Hirschfeld (University of Florida, USA)
- Iron-based superconductors—properties of materials in crystal and film forms—Sergey Budko (Ames Laboratory, USA) and Athena Safa-Sefat (ORNL, USA)
- Iron-based superconductors—properties related to applications—Carlo Ferdeghini (SPIN-CNR, Italy)
- Josephson junctions and SQUIDs—Francesco Tafuri (Seconda Università di Napoli, Italy)
- Large scale applications of superconductors and their fundamental technologies—Naoyuki Amemiya (Kyoto University, Japan)
- Low dimensional magnetism—Vladislav Kataev (IFW Dresden, Germany)
- Low temperature superconductors—Rustem Khasanov (The Paul Scherrer Institute, Switzerland)
- Magnetic materials processing and physical properties—Hakan Koçkar (Balıkesir University, Turkey)
- Magnetic recording, sensors and microwave devices—Uğur Topal (UME-TUBITAK, Turkey) and Peter Svec (Slovak Academy of Sciences, Slovakia)
- Magnetic shielding and cloaking in superconductors—Fedor Gomory (Slovak Academy of Sciences, Slovakia)
- Magnetism and spin effects in graphenes and other atomically-thin materials—Junji Haruyama (Aoyama Gakuin University, Japan)
- Magnetism in biological and bioinspired materials at the nanoscale—Igor Aronson (Argonne National Laboratory, USA) and Tanya Prozorov (Ames Laboratory, USA)
- Magnetism of nanoparticles, nanowires and nanostructures—Dino Fiorani (Institute of Structure of Matter-CNR, Italy)
- Magnetization dynamics and resonance—Farkhad Aliev (Universidad Autonoma de Madrid, Spain)
- Magnetocaloric effect—Abdelwaheb Cheikhrouhou (Materials Physics Laboratory, Tunisia)
- MgB₂—materials and applications—Hiroaki Kumakura (NIMS, Japan) and René Flukiger (University of Geneva, Switzerland)
- Modelling and measurements of AC loss in superconducting power devices—Sastry Pamidi (FSU-CAPS, USA)
- Mott states and Mott transitions—Valeri Vinokur (Argonne National Laboratory, USA)
- Multicomponent-multiband-multigap superconductivity—Milorad Milosevic (Universiteit Antwerpen, Belgium)
- Multiferroics and magnetic oxides—Maxim Mostovoy (University of Groningen, Netherlands)
- Nanoscale superconductivity—Vitaly Kresin (University of Southern California, USA)

- New phenomena and applications in molecular magnets—Javier Campo (Spanish National Research Council, Spain)
- Novel functional magnetic materials—basic approach and applications—Arkady Zhukov (UPV/EHU, Spain)
- Special session—in honor of the 100th anniversary of the birth of Vitaly Ginzburg—Ilya Eremin (University of Bochum, Germany)
- Spintronics—Eugene Chudnovsky (The City University of New York, USA) and Lior Klein (Bar-Ilan University, Israel)
- Spintronics of magnetic semimetals, semiconductors, and topological Insulators—Tomasz Dietl (Polish Academy of Sciences, Poland)
- Strongly correlated electrons—Systems—Tuson Park (Sungkyunkwan University (SKKU), South Korea)
- Superconducting circuits and systems—Coenrad Fourie (Stellenbosch University, South Africa)
- Superconducting magnets for the 100 TeV Hadron future circular collider—Ilya Eremin (University of Bochum, Germany) and Vyacheslav Klyukhin (Skobel'syn Inst. of Nuc. Phys., Switzerland)
- Superconductivity and magnetism studies with innovative instrumentation for extreme conditions—Daniel Braithwaite (CEA Grenoble, France)
- Superconductor fault current limiters—principles and practice—Alexis P. Malozemoff (American Superconductor Corp., USA)
- The coexistence of superconductivity and magnetism—Mehmet Eđilmez (American University of Sharjah, United Arab Emirates) and Alexander Buzdin (Université Bordeaux 1, France)
- The superconductors under extreme—the hydrates under pressure—Antonio Bianconi (RICMASS, Italy)
- Theory of magnetism—Ali Zaoui (University of Lille 1, France)
- Theory of superconductivity—Vladimir Kresin (Lawrence Berkeley National Laboratory, USA) and Iman Askerbeyli (Ankara University, Turkey)
- Topological insulators and superconductors and Weyl metals—Lia Krusin Elbaum (The City College of New York, USA)
- Vortices and nano-structured superconductors—Adrian Crisan (NIMP Bucharest, Romania)

A few session co-organizers have not been able to attend due to the unforeseen issues; however, because their efforts are very important in the sessions, their names are included in a way to thank their valuable contributions.

The fruitful discussions and exchanges in the above focused sessions gave a pave to the success in bridging the gap between the delegates to meet the necessities of the conference with a concept “The bridge between East and West in scientific and technological excellence of quality.” The delegates and companions have also enjoyed the beautiful

weather and the social program in the touristic and historical places of Fethiye.

It is really difficult to give an objective overview of the conference. Instead of making a very technical summary of the conference, it is decided to refer the presentations at the closure. Closing remarks have been made by the following eminent speakers about various mainstreams of the ICSM 2016. The closing session videos will be released online for ICSM 2016 participants until ICSM 2018 from the address: Closing Ceremony: <https://vimeo.com/album/3939532>. The site is password-protected, only the permitted videos are released to be watched. The videos of the presentations are given in (Table 3).

The list of supporters and exhibitors are as follows:

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- Springer
- FOTONIKA

It is a great pleasure for us to thank all exhibitors and the sponsors for their pivotal role in the organization of the conference. We would also like to thank the speakers, the participants, the exhibitors, Ankara University staff, and students from universities all around Turkey for their efforts.

More information about the conference can be found at <http://icsm2018.org/>. The next edition of International Conference on Superconductivity and Magnetism (ICSM 2018) is scheduled in the spring of 2018, in Fethiye. Fethiye is a historical town with many attractions and will be a very good venue for the Sixth ICSM 2018. For the most international delegates, Fethiye is about 60 km away from the Dalaman, which is the international airport with either direct flights and/or via connections from Istanbul airports. The venue will be the same as for the ICSM 2016. For updates on ICSM 2018, you may visit the website <http://icsm2018.org/>. We hope to see you again at the next conference ICSM 2018 in Fethiye, Ölüdeniz. The scope of the conference will be expanded on more of materials aspects.

Turkey's vision and interest on superconductivity and magnetism together with cryogenics will remain for some time. It is a very good example of scientific cooperation

Table 3 Presentations as closing remarks

Speaker	Topic
Ali Gencer	JSNM special issue as proceedings of the ICSM 2016
Eugene Chudnovsky	Magnetism, spintronics, fundamentals and applied research
Rene Flukiger	Superconducting materials
Naoyuki Amemiya	Superconducting large scale applications
Pascal Pebvre	Superconducting electronics applications
Najib Cheggour	Energy related issues: driving forces
Davor Pavuna	General remarks for the conference

between all the countries for the benefits of science and fruitful networking among the scientists, technologists, and potentially talented students.

At last but not the least, I owe a lot to the family and special thanks for Sadiye, Emine Begum, and Metehan for their understanding and devotion.