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International Conference on Spectral Lines Shapes

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24th International Conference on Spectral Lines Shapes
17-22 June 2018, Dublin, Ireland

Editors

John Costello
Dublin City University

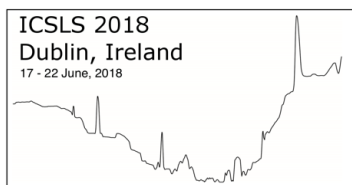
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University College Dublin

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24th International Conference on Spectral Lines Shapes.



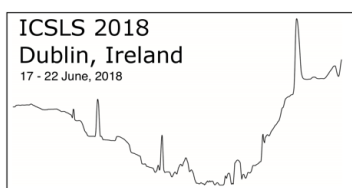
SCOPE

- Atomic and molecular transitions in gaseous mixtures
- Cold atoms and molecules, collision-induced spectra
- Fundamentals of narrow optical resonances
- Quantum gases, BEC and optical clocks
- Spectroscopy of stellar atmospheres and interstellar media
- Spectroscopy of planetary atmospheres and exoplanets
- Processes in intense laser fields
- Single and multi-photon ionization processes
- High and low temperature (including fusion) plasmas
- Innovative techniques of line shape applications for diagnostic purposes
- Clusters and helium droplets
- Nanophotonic processes
- Applications in industrial, environmental, medical, etc. sectors

INVITED SPEAKERS

- Ali M. Adawi (Hull, United Kingdom)
- Valeriy Astapenko (Moscow, Russia)
- Thomas Baumert (Kassel, Germany)
- Nelly Bonifaci (Grenoble, France)
- Mateusz Borkowski (Torun, Poland)
- Alain Campargue (Grenoble, France)
- Milan S. Dimitrijević (Belgrade, Serbia)
- Colette McDonagh (Dublin, Ireland)
- Tijs Karman (Durham, United Kingdom)
- Eugene Kennedy (Dublin, Ireland)
- Reinhard Kienberger (Garching, Germany)
- Oliver J. F. Martin (Lausanne, Switzerland)
- Shigeru Morita (Gifu, Japan)
- Shinichi Namba (Hiroshima, Japan)
- Christian G. Parigger (Tennessee, USA)
- Thomas Pfeifer (Heidelberg, Germany)
- Richard Russo (Berkeley, USA)
- Kimberly Strong (Toronto, Canada)
- Franck Thibault (Rennes, France)





24th International Conference on Spectral Lines Shapes.



INTERNATIONAL PROGRAMME

Valeriy Astapenko (Russia)
 Dionisio Bermejo (Spain)
 Roman Ciurylo (Poland)
 John Costello (Ireland)
 Elisabeth Dalimier (France)
 Alexander Devdariani (Russia)
 Robert Gamache (USA)
 Motoshi Goto (Japan)
 Magnus Gustafsson (Sweden)
 Carlos Iglesias (USA)
 Eugene Oks (USA)
 Christian Parigger (USA)
 Gillian Peach (UK)
 Luka Popovic (Serbia)
 Adriana Predoi-Cross (Canada)
 Roland Stamm (France)
 Kimberly Strong (Canada)
 Ha Tran (France)

LOCAL ORGANISING COMMITTEE

John Costello (DCU) - Chair
 Peter van der Burgt (MU)
 Louise Bradley (TCD)
 Hugh Byrne (DIT)
 Jason Greenwood (QUB)
 Paddy Hayden (DCU)
 Mossy Kelly (Hull)
 Deirdre Kilbane (UCD)
 Ernst de Mooij (DCU)
 Noel Moore (FB Consulting)
 Albert Ruth (UCC)
 Matt Shaw (INTEL)
 Emma Sokell (UCD)
 Irene Ryan (DCU)



24th International Conference on Spectral Line Shapes (ICSLS 2018)

It is commonly accepted that the Europhysics Study Conference on Spectral Line Broadening and Related Topics which was held in Meudon in 1973 was the first in the current series of ICSLS meetings. The ICSLS is a bi-annual conference series and to date has been held at alternating European and North-American conference venues. It is proposed that it move to other continents in future. The most recent venues were Paris, France (2004), Auburn, USA (2006), Valladolid, Spain (2008), St. John's, Canada (2010), St. Petersburg, Russia (2012), Tullahoma, Tennessee, USA (2014) and Torun, Poland (2016). The 2018 (24th) ICSLS conference took place in Dublin during June 17 - 22, 2018.



24th International Conference on Spectral Line Shapes, Dublin, June 2018.

The ICSLS covers a broad range of topics related to spectral line shape studies, including: line shapes of atomic and molecular transitions in neutral gaseous mixtures, single and multi-photoionisation ionisation processes, high and low temperature plasmas, clusters and helium droplets, nanophotonic processes, spectroscopy of stellar atmospheres and interstellar media, spectroscopy of planetary atmospheres and exoplanets, cold atoms and molecules, collision-induced spectra, processes in laser fields, innovative techniques of line shape applications for diagnostic purposes and fundamental studies with narrow optical resonances along with applications in e.g., industrial, environmental, medical and all other potential domains of interest. The conference includes a mix of invited talks, talks selected from submitted abstracts and poster presentations.

The conference venue was Dublin City University located on the north side of Dublin city close to the airport. The local organising committee included AMO physicists from all four Dublin universities as well as Maynooth University, University College Cork and Queens University Belfast (N. Ireland). Two industry based members came from INTEL and FB Consulting. The conference was attended by 75 delegates from 20 different countries. 94 papers were presented, comprising 19 Invited Talks, 23 Selected Talks and 52 posters. The Book of Abstracts can be downloaded from a link on the conference homepage <https://www.icsls2018.com/>. Following the conference a total of 47 peer reviewed papers are published in Journal of Physics Conference Proceedings.

The conference was opened on the morning of June 18th by Prof. Brian MacCraith, President of Dublin City University who welcomed the delegates and spoke of his own long experience of optics and spectroscopy as the Director of a number of research centres at DCU before taking up his current role. The opening was preceded by a welcome reception on the evening before. The conference banquet was held in the 1838 Club in the Albert College at DCU. In 1838, John Pitt Kennedy acquired land for the Crown to build a model farm and a training establishment for National (Primary) School teachers. Following a visit by Prince Albert in 1853 it was decided to rename the site as the Albert National Agricultural Training Institution and build the Albert College which is now the site of DCU. The 1838 Club is located in the historic building. There was also a tour of the Guinness Store House in Dublin, site of the historic Guinness Brewery founded in 1759.

We would like to thank the International Programme Committee, especially the two most recent conference chairs Chris Parigger and Roman Ciuryło for their critical advice and support. We also thank all members of the Local Organising Committee for their work in all phases of hosting the conference. We also thank all sponsors that supported the 24th ICSLS including Applied Spectra Inc., Newport Optics, PhaseTech Spectroscopy, Coherent Inc., Meet in Ireland, Dublin City University and the EACEA EXTATIC EMJD.

The International Program Committee met to discuss future of the ICSLS. The next (25th) ICSLS will be organised by Livio Gianfrani of the Università degli studi della Campania “Luigi Vanvitelli”. It will take place in Caserta, Italy. Our very best wishes go to Livio and his colleagues for a successful conference.

John Costello, Patrick Hayden, Emma Sokell and Peter van der Burgt

Editors of the proceedings of the 24th International Conference on Spectral Lineshapes.

Minutes of the meeting of the International Program Committee of the 24th ICSLS

The meeting of the International Program Committee member took place in the board room of the Nano Research Facility (NRF) on the Glasnevin Campus of Dublin City University, adjacent to the conference site on Monday, June 18, 2018. It began at 12 pm and ended at 2 pm. Members attending the meeting were: Valeriy Astapenko (Russia), Roman Ciurylo (Poland), Alexander Devdariani (Russia), Robert Gamache (USA), Motoshi Goto (Japan), Magnus Gustafsson (Sweden), Eugene Oks (USA), Christian Parigger (USA), Gillian Peach (UK), Adriana Predoi-Cross (Canada), Gamal Daniel Royston (Egypt), Roland Stamm (France), Livio Gianfrani (Italy) and John Costello (Ireland). The first item was the agenda which was agreed. The minutes of the 2016 Torun IPC Meeting were accepted without any amendments.

The third item of business concerned the site for the 25th edition of the ICSLS to take place in 2020. There were two presentations, one from Prof. Livio Gianfrani, Università degli studi della Campania “Luigi Vanvitelli”, Italy and the second from Prof. Magnus Gustafsson, Luleå University of Technology, Sweden. Prof. Magnusson magnanimously agreed to Italy as the site for the 2020 ICSLS conference. The location is Caserta, Italy and the *provisional dates* are set for 22 - 26 June, 2020. The committee were very open to a future bid from Luleå and thanked both Prof. Gianfrani and Prof. Magnusson for their interest and preparatory work on their bids to host an ICSLS conference. Next Prof. Motoshi Goto, National Institute for Fusion Science, Toki, Japan made a presentation in a bid to host the 26th ICSLS in 2022 in Japan. The committee were very impressed with the presentation and decided to defer the final decision to the IPC meeting in Caserta 2020.

The meeting broke for 15 minutes at 1pm for a sandwich lunch.

It resumed with the fourth item of business, a short presentation of the key numbers for the 24th ICSLS conference. The conference was attended by 75 delegates from 20 different countries including Australia, Canada, Egypt, France, Germany, Ireland, Italy, Japan, Latvia, Nigeria, Pakistan, Poland, Russia, Serbia, Spain, Sweden, Switzerland, Turkey, the UK and the USA. 94 papers were presented, comprising 19 Invited Talks, 23 Selected Talks and 52 posters. The overall budget to include income (including sponsorship) and expenses was presented. The high cost of, and hence barrier to, holding meetings in expensive countries like Ireland was noted, as was the need to find additional and more significant sponsorship, especially for students, delegates from less resourced regions and some early stage postdoctoral researchers. John Costello agreed to share the detailed figures with Livio Gianfrani to help with budget preparations for the 2020 ICSLS.

Under item 5 the committee discussed topics related to spectral line shapes that were less well represented at the 24th ICSLS than heretofore and new topics that could be included in future meetings. As in 2016 these include astrophysics, exoplanets, optical clocks development, ultracold physics, nuclear fusion, basic plasma physics and its spectroscopic aspects. The need for balanced representation in the committee across topics and regions was also discussed in detail. The IPC is open suggestions for new members. The committee looked to a positive future for the conference with both traditional and new fundamentals and applications of spectral line shapes leading a vibrant and burgeoning research area and community.

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