

Colloquium n. 617 - Multiscale mechanics, multiphysics modeling and simulations for energy storage

Dates and location

29 August — 31 August 2022, Lake of Garda, Italy

Chairperson

Prof. Alberto Salvadori, Università degli Studi di Brescia, Italy

Co-chairperson

Prof. Robert McMeeking, UCSB, USA ; Dr. Edwin Knobbe, BMW AG, Germany

Conference fees

- Early bird [15/5/2022] - full registration : **250.00 €**
- Late [after 16/5/2022] - full registration: **300.00 €**
- Online registration: **100.00 €**
- Accompanying fee (dinner): **80.00 €**
- Poster registration: **250.00 €**

What other funding was obtained?

Sponsors:

University of Brescia ; BMW Group ; Dassault Systemes ; Comsol ; Sabic

Conference fees:

Early registration speakers: 250 euros ; Late registration speakers: 300 euros ;

Poster registration speakers: 250 euros ;

Remote attendance registration: 100 euros ;

Euromech provided 2000 euros support, and the platform cost for remote attendance was 2500 euros.

What were the participants offered?

- Three days of scientific presentations and round-table discussion, in hybrid format (30 speakers, 11 posters, 4 in-person attendees; 7 video-conf) at the Congress Center in Sirmione, Lake of Garda.

- Five coffee breaks with pastries and cookies.

- 1 colloquium dinner at the winery "Borgo la Caccia", Pozzolengo. The dinner included bus transport, a performance by a duet (Daniela Fusha arpa and violin ensemble); cocktail.

- Welcome address from the Rector of the University of Brescia, from the Major of Sirmione.

- Service of remote connectivity, safety, cleaning.

- 11 Posters printing.

Applicants (members)

1. Matteo Arricca
2. Claudia Bonanno

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7. Marc Kamlah
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9. Gueric Lemoine
10. Emilio Martinez-Paneda
11. Robert McMeeking
12. Matthias Neumann
13. Kenneth Runesson
14. Alberto Salvadori
15. Volker Schmidt
16. Brian Sheldon
17. Wolfgang A. Wall
18. Bai-Xiang Xu

Applicants (non members)

1. Apu Basak
2. Marzieh Bastanfar
3. Sascha Berg
4. Manuel Berlato
5. Nicole Blum
6. Kingshuk Bose
7. Giovanna Bucci
8. Pieremanuele Canepa
9. Yanyu Chen
10. Andrea Colavitto
11. Marvin Cronau
12. Dmitri Danilov
13. Tanmay Dev
14. Claudio Di Leo
15. Sahar Esmizadeh
16. Eta Forshamn
17. Alejandro A. Franco
18. Orkun Furat
19. Kai Guo
20. Souzan Hammadi
21. Juan Hurtado
22. Satheesh Kandasamy
23. Han Kil Kim
24. Arno Kwade
25. Matthias Lachner
26. Arnulf Latz
27. Matthew McDowell
28. Simone Montalto
29. Victor Oancea
30. Daniele Panfiglio
31. Sreekanth Pannala
32. Omar Perego
33. carlo piccinato
34. Yue Qi
35. IRENE QUINZENI
36. Birgit Regner-Kamlah
37. Michele Rizzotti
38. Maria Schmidt
39. Christoph Schmidt
40. Mattia Serpelloni
41. Paul Shearing
42. Don Siegel
43. Stephan Sinzig
44. Jessica Smith
45. Paul Specker
46. Christiaan Stoker
47. Robert Taylor
48. Negin Valizadeh
49. Tejs Vegge
50. Erkin Yildiz

Scientific report

The purpose of the Euromech Colloquium "MULTISCALE MECHANICS, MULTIPHYSICS MODELING AND SIMULATIONS FOR

ENERGY STORAGE" was to bring together the most active international research and industrial groups (with a special focus on Europe) to discuss fundamental issues for the development of next generation batteries - typically lithium or sodium ion.

Safety issues have led to the development of solid-state batteries, which present many open problems, most of which - perhaps surprisingly to non-experts - mechanical in nature. Although the usual audience for these kind of conferences is the academic one, the times we live in and a natural inclination of the organizers call for a strong presence of industrial groups, both large players in the manufacturing of batteries and automotive or consumer in general. One third of the scientific committee was selected from industry (BMW, Dassault Systemes Simulia Corp.) and representatives of several industrial groups attended the colloquium (Sabic, Ferrari Automotive, Fincantieri among others).

Most leading academic research groups from the field were represented, of course. The colloquium was attended by a total of 52 participants (30 invited speakers, 11 posters, 4 in-person attendees; 7 video-conf).

Participants came from institutions in Italy, France, Germany, Spain, UK, Russia, China, USA, Sweden, Denmark, and Singapore. 30 oral face-to-face presentations of 30 minutes each - including Q&A, were given over the three days of the colloquium.

The keyword of the colloquium was interdisciplinarity. The stage hosted mathematicians, mechanics, computational experts, experimental and theoretical electrochemist, academic and industry-oriented talks. Such a strong multi-disciplinary organization was largely appreciated and made the colloquium a unique forum, capable to foster and boost interactions among the scientific groups.

Number of participants from each country

COUNTRY	PARTICIPANTS
Italy	21
Germany	20
United States	15
United Kingdom	4
Sweden	3
Singapore	2
France	1
Belgium	1
Denmark	1
TOTAL	68